3.D. Macro-social benefits of education, training and skills

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Introduction

The European Centre for the Development of Vocational Training (Cedefop) has published reports on vocational education and training research since 1998. These reports provide a comprehensive review of current research on vocational education and training and related socioeconomic research in Europe, its results and implications for policy, practice and future research. The third report *The value of Learning: Evaluation and Impact of Education and Training* was published in 2004 and 2005.[1]

This paper presents selected research results on macro social benefits of education and training. More specifically, it discusses indicators of the relationship between selected macro-social variables and educational inequality. It is based on the literature review and empirical analyses prepared by Green, Preston and Malmberg (2004) for Cedefop's third research report. The complete Green *et al.* report which includes an in-depth literature review and some additional empirical evidence of the impact of education on crime, on social cohesion, trust and tolerance and on active citizenship, civic and political participation is published in Descy and Tessaring (2004a).[2]

Cedefop intends to continue supporting and disseminating research and analysis on the social benefits of education and training and is therefore particularly interested in the progress and results achieved by the SOL project.

Characteristics of macro-social benefits

Macro-social benefits comprise all non-material benefits that accrue to society. They can also be considered as externalities of investment in education and training at societal level. Examples of macro-social benefits are: social cohesion, social capital, income equality, trust in institutions or democracy, reduction of crime, of poverty, etc. Of these macro-social benefits some are aggregates of micro individual benefits (*e.g.* reduction of crime, of poverty, improved health), while others are not (*e.g.* social capital, social cohesion). The latter kind of benefits are of a macro-social nature:

- They cannot necessarily be attributed to particular members, agents or communities lower than the national level, e.g. social cohesion may be measured,

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[1] The third report is published in two parts: (a) a set of contributions from researchers across Europe, collected into three volumes (Descy and Tessaring, 2004a; 2004b; 2004c); (b) a synthesis report based upon the first set of contributions as well as additional research (Descy and Tessaring, 2005).

[2] The report can be downloaded from *www.trainingvillage.gr/etv/Projects_Networks/ResearchLab/*

or at least proxied, at macro-level but it is not possible to quantify the social cohesiveness of an individual.

- They are often positional in nature, e.g. improved literacy can be expressed in terms of an individual, education equity – i.e. the distribution of educational outcomes – cannot.
- They are system level benefits, e.g. societal trust is more than the aggregation of expressed individual trust, although the latter can be used as a proxy measure; it includes cultural and historical norms of trust which are particular to a society or a community.

Investigating macro-social benefits

Following a literature review, Green *et al.* carry out an empirical analysis of the relation between education and educational inequality on social cohesion. Their data set uses the World Value Survey, the International Adult Literacy Survey (IALS), Interpol crime statistics and the International crime victimisation survey. It covers the following countries: Australia, Belgium, Denmark, Finland, Germany, Ireland, the Netherlands, Norway, Poland, Portugal, Sweden, the United Kingdom, and the United States.

The macro-social indicators selected were the following: general trust, trust in democracy, civic cooperation (*i.e.* cheating on public transport and on taxes), a civic participation measure, a tolerance indicator, measures of violent crime and perception of risk of assault in the local community.

Correlation between education and social cohesion measures

The education variable used for calculating correlations with the macro-social indicators selected is the mean prose literacy score of upper secondary graduates. Overall, authors found no significant correlations ($p<0.05$) across countries between aggregate skill levels and the various measures of social cohesion (Table 3.D.1). It is likely that national cultural and institutional factors greatly outweigh gross education effects on social cohesion.

Table 3.D.1. Pearson correlation coefficients and levels of significance for mean level of upper secondary attainment and social cohesion aggregates

		General trust	Civic participation	Trust in democracy	Cheating on taxes	Cheating on public transport	Violent crime	Tolerance	Risk of assault
Mean literacy score at upper secondary level	Pearson correlation	.354 [a]	-.120	.244	-.376	-.487	-.055	.491	-.505
	Sig. (2-tailed)	.196 [b]	.670	.381	.167	.066	.845	.063	.078
	N	15	15	15	15	15	15	15	13

a) Correlation is significant at the 0.05 level (2-tailed).

b) Correlation is significant at the 0.01 level (2-tailed).

Source: Green, Preston and Malmberg (2004).

Educational inequality and social cohesion

The scientific literature on social cohesion suggests that it is highly sensitive to distributional effects. To test the effect of educational inequalities, Green *et al.* build a literacy test-score ratio which is the ratio between the mean prose literacy score of those with tertiary education and those with lower secondary education (Table 3.D.2). This ratio indicates that the inequality in skills outcomes are rather higher in Canada, the United Kingdom and the United States compared to some continental and Nordic countries such as Germany and Sweden.

Table 3.D.2. Mean literacy scores and test-score ratio for countries in sample

Country	Lower secondary education	Upper secondary education	Tertiary education	Skill distribution ratio
Australia (AU)	250.60	280.00	310.40	1.24
Belgium (B)	242.50	281.00	312.30	1.29
Canada (CA)	233.40	283.80	314.80	1.35
Switzerland (CH)	228.10	274.10	298.30	1.31
Germany (D)	265.60	283.80	310.10	1.17
Denmark (DK)	252.80	278.10	298.50	1.18
Finland (FIN)	261.60	295.90	316.90	1.21
Ireland (IRL)	238.80	288.20	308.30	1.29
Netherlands (NL)	257.50	297.00	312.10	1.21
Norway (NO)	254.50	284.40	315.10	1.24
Portugal (P)	206.60	291.50	304.80	1.48
Poland (PL)	210.50	252.70	277.30	1.32
Sweden (S)	275.40	302.30	329.10	1.19
United Kingdom (UK)	247.90	281.90	309.50	1.25
United States (US)	207.10	270.70	308.40	1.49

Source: Green, Preston and Malmberg (2004).

Table 3.D.3 presents the correlation between this measure of skill distribution and social cohesion indicators under analysis. There is a significant negative correlation between educational inequality and the level of general trust: the higher the level of educational inequalities, the lower the level of general trust. This is also demonstrated in Figure 3.D.1 which depicts the relation for individual countries. Those countries with low inequality in the skill distribution have high levels of trust and those with high inequality have low levels of trust.

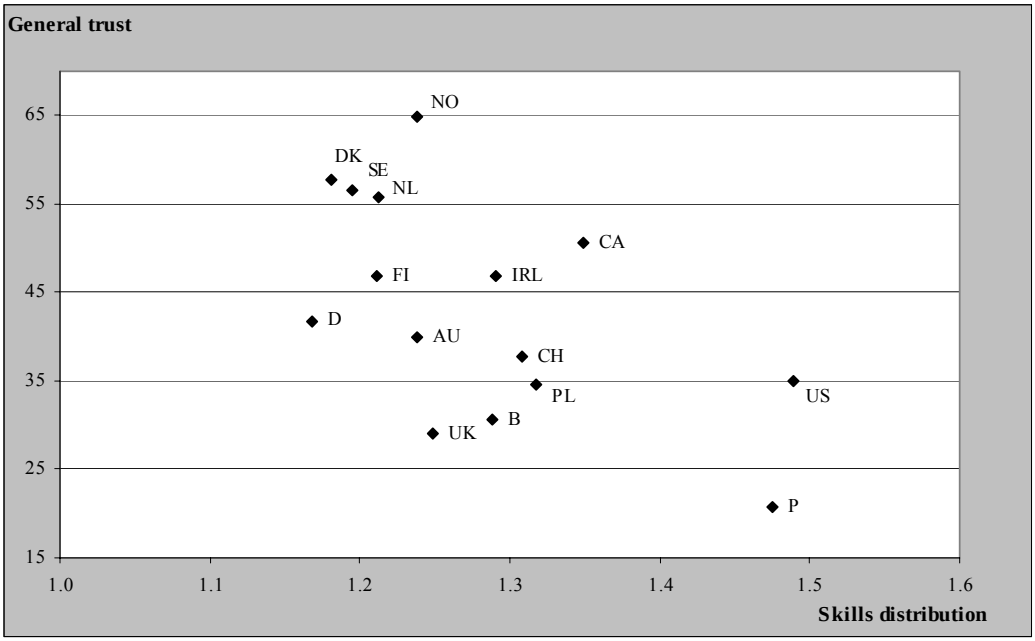
Table 3.D.3. Pearson correlation coefficients and levels of significance for distribution of educational attainments and social cohesion aggregates

		General trust	Civic participation	Trust in democracy	Cheating on taxes	Cheating on public transport	Violent crime	Tolerance	Risk of assault
Skill distribution ratio	Pearson correlation	-.592 [a]	.333	-.283	.265	.171	.398	-.060	.404
	Sig. (2-tailed)	.020	.225	.307	.340	.543	.142	.831	.171
	N	15	15	15	15	15	15	15	13

a) Correlation is significant at the 0.05 level (2-tailed).

Source: Green, Preston and Malmberg (2004).

Figure 3.D.1. Educational equality and general trust



Source: Green *et al.* 2004.

Income inequality and social cohesion

After finding a statistically significant correlation between the skill distribution ratio and a measure of income inequality using GINI coefficients,[3] Green *et al.* test the association between income inequality and macrosocial outcomes (Table 3.D.4). They found significant positive relationship between income inequality and violent crime and the perceived risk of assault in the community and a significant negative relation between income inequality and general trust. These effects of income inequality persist even when controlling for the general level of economic activity, using GNP per capita (Table 3.D.5). In this case, the correlation between income inequality and civic participation also becomes significant.

Table 3.D.4. Pearson correlation coefficients and levels of significance for distribution of income and social cohesion aggregates

		General trust	Civic participation	Trust in democracy	Cheating on taxes	Cheating on public transport	Violent crime	Tolerance	Risk of assault
Income inequality GINI	Pearson correlation	-.547 (a)	.414	-.305	.403	-.009	.640 (a)	.240	.636 (a)
	Sig. (2-tailed)	.035	.125	.269	.136	.975	.010	.389	.020
	N	15	15	15	15	15	15	15	13

a) Correlation is significant at the 0.05 level (2-tailed).

Source: Green, Preston and Malmberg (2004).

[3] Gini coefficients for the countries of the data sets come from the World Bank (2001).

Table 3.D.5. Pearson correlation coefficients and levels of significance for distribution of income and social cohesion aggregates with controls for GNP/capita

		General trust	Civic participation	Trust in democracy	Cheating on taxes	Cheating on public transport	Violent crime	Tolerance	Risk of assault
Income inequality GINI	Pearson correlation	-.562 [a]	.595 [a]	-.032	.430	-.004	.660 [a]	.270	.628 [a]
	Sig. (2-tailed)	.037	.025	.293	.125	.989	.010	.350	.029
	N	15	15	15	15	15	15	15	15

a) Correlation is significant at the 0.05 level (2-tailed).

Source: Green, Preston and Malmberg (2004).

Conclusions

The few results presented here aimed at illustrating the kind of relationship that can be highlighted in combining macro level data and indicators to investigate macro-social benefits of education. They indicate a clear relationship between educational and income inequality and social outcomes such as general trust, crime and feeling of community safety.

The literature review carried out in the framework of the third research report has shown that increases in the general level of education have not had a direct effect on national levels of tolerance, crime or social cohesion. However, education and training are indirectly linked with macro-social benefits, by playing a role in reducing poverty, unemployment and inequality in income distribution. It seems therefore that raising educational level is neither a necessary nor a sufficient condition for promoting macro-social benefits but that improving equity, *i.e.* reducing the distribution of educational outcomes, may be one way in which education and training can make a contribution (Descy and Tessaring, 2005, p. 227).

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