

Box A12.2. Literacy and growth in 14 OECD member countries

Recent research has sought to estimate the relationship between human-capital and economic growth using a direct measure of human capital based on internationally comparable literacy scores. This approach goes some way to avoiding the problem of the imperfect comparability of measures of educational attainment across different national education systems. The literacy measures were obtained from the 1994 International Adult Literacy Survey (IALS). IALS tested the skills of individuals aged between 16 and 64 in prose, quantitative and document literacy. The data cover 14 countries, all members of the OECD. Using these survey findings, a synthetic time series was constructed for the period 1960-1995. The literacy results of individuals aged 17 to 25 in a given period were then used as proxies for investment in human capital during the previous period (the authors note that the imputation of literacy skills early in life, based on data collected in adulthood, requires adjustment for the changes in human capital that occur over the life-cycle. This adjustment was not made, and represents a disadvantage of this synthetic indicator in comparison to indicators of schooling. However, the procedure used to remove mean values from the cross-sectional data would afford the required adjustment, if the process of adjustment in human capital over the lifecycle is homogeneous across countries). Time series and cross-country information was pooled in a panel data set. The authors note that the non-inclusion of information on immigration flows in this indicator is a weakness.

The research indicates that literacy scores, as a direct measure of human capital, perform better in growth regressions than indicators of schooling. A country able to attain literacy scores 1% higher than the international average will achieve levels of labour productivity and GDP per capita that are 2.5% and 1.5% higher, respectively, than other countries. The authors offer two explanations as to why literacy data should contain more information on the relative well-being of nations than data on years of schooling. One is that literacy might be a superior measure of some key driver of growth, such as social infrastructure. Another is that data on literacy skills might be more comparable across countries than data on years of schooling. To assess these interpretations, the authors propose future research using both indicators of human capital to compare growth effects across regions within a given country. This could help to surmount problems of imperfect international comparability. The relative performance of the two indicators would reveal which performed best as a measure of human capital and which was most closely associated with economic growth.

Measures based on average literacy scores across all individuals were shown to serve as much better indicators of aggregate human capital than measures based on the share of individuals attaining high levels of literacy. This finding is in line with the idea that the principal impact of education on growth is to raise the productivity of the workforce as a whole, rather than to increase the number of individuals able to bring about radical innovations. A striking finding was that increases in literacy skills among women have a much larger effect on growth than increases in literacy among men. Various possible explanations for this finding were advanced: investment in the education of women may have been provided to particularly high-ability individuals who were previously held back by social barriers; the rate of return to education among women may have been high owing to low initial levels of literacy; increased education might allow a reallocation of male and female labour across occupations, allowing more men and women to subsequently work in occupations for which they have a comparative advantage; if male and female labour is not perfectly substitutable, increased education of women might be associated with a period of fast-growth rebalancing of the stock of human and physical capital prior to achieving a new steady state

level; possible statistical effects stemming from greater variation in women's literacy scores across countries; and the fact that women's literacy could be associated with omitted variables that affect growth, such as a country's level of social development.

Source: Coulombe, S., J-F. Tremblay and S. Marchand (2004), *Literacy Scores, Human Capital and Growth Across 14 OECD Countries*, Statistics Canada and Human Resources and Skills Development Canada, Ottawa.