

PLAIN LANGUAGE SUMMARIES

SCHOOLING, LITERACY AND INDIVIDUAL EARNINGS

SUMMARY BY JAMES E. PAGE

What is this study about?

This paper is one in a series of monographs designed to explore the implications flowing from the results of the International Adult Literacy Survey or IALS. Osberg observes that for public policy purposes it would be helpful to know which of the skills produced by the educational system actually pay off financially, and by how much. He notes that the standard reaction of many economists who grapple with this question is to use some variety of regression analysis to estimate the return to one characteristic (such as years of schooling), holding other influences constant.

However he urges caution in using measures of skill levels as a way to predict earnings. He says that although input measures such as years of schooling or per-pupil expenditures have natural metrics, which are cardinal numbers (put simply, the sum of a number of units of measurement such as years or dollars), he also notes that there is no similar way of “counting” literacy, or other social or cognitive skills. He explains that since literacy attainment in IALS is an ordinal “ranking” (5 is better than 4 is better than 3), it is therefore important to test the reliability of empirical results against other possible ways to scale literacy scores.

Osberg adds that the scaling of literacy scores is inherently arbitrary. However, he notes it has become commonplace to make comparisons between the average literacy levels of different jurisdictions. He says that these comparisons are often used to justify appeals for additional public expenditure, on the basis that a more literate work force will be more productive. He acknowledges that although this may be true “*to some degree*”, he says that any rigorous cost–benefit calculation would have to answer the question “How much does literacy matter?”

Consequently his paper emphasizes the importance of alternative possible scalings of literacy scores because, Osberg argues, literacy scores are inherently ordinal, not cardinal, numbers. So he contends that although tests of literacy skills can be used to assess whether one individual is “more literate” than another, the statement that one individual is “25% more literate,” or “10% less literate,” than another would make little sense. He concludes that the size of the differences between individuals at each point in the distribution of literacy skills (for example the magnitude of the differences among those with poor literacy skills, or among those who are highly skilled) is simply impossible to measure.

What are the questions addressed by the study?

Osberg poses two key questions using data drawn from the International Adult Literacy Survey (IALS). “How much does literacy affect earnings? More precisely, how much of the economic payoff to education can be explained by literacy skills?”

In posing these questions Osberg notes that most of the extensive literature on the impact of education on earnings actually measures the impact of *inputs* into the educational system — such as years of school attendance or expenditures on teachers and other school resources. At the same time he adds, there is a great deal of public discussion about whether educational standards are rising or declining, and about how this might be affecting Canada's productivity performance. However, in general he notes, economic studies on the benefits of education have not used direct measures of educational outcomes (such as literacy) to explain individual earnings even though literacy skills are obviously one of the main outcomes of the educational system.

Why is this study important?

Education, Literacy and Individual Earnings is an important contribution to the discussion about the impact of literacy on the economic success of individual Canadians. It also explains the complexity inherent in trying to measure social and cognitive skills such as literacy. It points out some of the dangers implicit in the fact that the most commonly used statistic is the rank order of average scores.

As Osberg explains, average literacy rankings for the entire population are “a lagging indicator”. He explains that people who left school 40 or even 50 years ago are mingled with those who have recently done so, and it takes decades for the impact of educational policy changes to appear in the overall average. The moral, according to Osberg, is that caution should be used in interpreting average literacy attainment assessments.

He notes, for example, that based on a comparison of simple population average scores people might be tempted to say that average literacy levels are lowest in Atlantic Canada. However, he adds that Nova Scotia is frequently ranked as having the highest average literacy level in the country among those less than 30 years of age. In general, he concludes, before policy conclusions are drawn it would prudent to be sure that rankings of average proficiency are not just result of the scaling of individual scores.

What does the study conclude?

Osberg concludes that the development of direct measures of skill attainment, such as the IALS data, offers labour economists a powerful tool to help explain labour market outcomes. There is a great deal of useful information in such test scores, he says, and they show, for example, that the literacy test scores of men have a statistically and empirically significant relationship with individual earnings, and that this effect stands up to rigorous examination using other measurement options.

The paper also emphasizes the cautious use of direct measures of skill attainment in this kind of statistical analysis. Osberg notes that labour economists have developed many complex statistical techniques for working with data, but the underlying concepts have typically been clearly observable (such as number of children, hourly wage or marital status), which can be measured either as cardinal numbers or as discrete states.

Osberg says literacy (in fact skill attainment more generally) is not like that because literacy is a complex concept for which there is no natural unit of measurement. He points out that literacy scores are also inherently ordinal numbers, and a variety of ways

of using and interpreting those scores is plausible. Although direct measures of literacy proficiency, such as the IALS, can rank individual's literacy attainment, he cautions that literacy scores are the product of complex statistical procedures which involve many of the same variables (such as education or age) that labour economists would usually expect also to play an independent role in determining labour market outcomes.

He concludes that the perceived impact of literacy on labour market outcomes could be influenced by the method used to calculate literacy scores. He adds that more generally, many public services have a "quality" dimension that is similarly complex, and similarly inherently ordinal. Therefore the issue of how best to measure the impact of literacy on individual earnings may be an example of a more general problem. He argues that the methods used to calculate "quality" measures of public sector outcomes may be central to the perceived "success" of public policies. This leads to his conclusion that the assessment of the relative success, or failure, of public sector policies (such as education) by the criterion of average literacy levels in different jurisdictions may be overly reliant on measurement choices and scaling assumptions.

He points out that particularly for males much of the return on investment in education is due to the rate of return on enhanced literacy skills, perhaps as much as 40% to 45%, although he adds that the exact proportion of the return to education that can be accounted for by literacy skills depends somewhat on measurement choices and scaling assumptions. Osberg also found that the rate of return to education for women is both higher and less influenced by literacy proficiency.

He says that there is also some suggestion in the data that the relative influence of literacy may vary, noting that literacy may account for a higher proportion of the impact of education on earnings among those with high literacy skills rather than those with lower skill levels. Finally Osberg concludes that the different roles played by literacy proficiency among men and women, and the impact of literacy on earnings at different points in the distribution of literacy, remain important issues for future research.

Publication information

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