Scholarly culture and academic performance in 43 nations: (Extended abstract)

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Prior research has established that there is a substantial association between scholarly culture in the home, as indicated by home library size, and educational attainment in a very wide range of societies and under a considerable variety of institutional arrangements and political regimes. The evidence thus far suggests that there is a substantive link, but it is mostly indirect concerning the input and the outcome, but not the mechanism linking them. This paper investigates whether there is a direct link between the number of books in the home and academic performance as indicated by test scores; the data are only for a single time point, 2000, but they come from an even wider range of countries than in prior analyses of educational attainment.

Data and Methods

Data are from the year 2000 round of the OECD's Program for International Student Assessment (PISA), conducted in 43 nations (OECD 2002). We analyze the combined reading scale, which includes sub-scales focused on retrieving information, interpreting texts, and reflection and evaluation. This is the most reliable of the PISA achievement measures, .93, and is highly correlated with scales measuring science achievement and mathematics achievement. It is scaled to have a mean of 500 and a standard deviation of 100. The data are available for downloading from the PISA website. ***Measurement*** of the control variables is fairly standard. **Parents' education** is in years, averaging mother's and father's education. **Parents' occupational status** is based on 4 digit ISCO 1988 recoded into Treiman's 14 nominal categories and thence into Kelley's Worldwide Status Scores. **Parents' wealth** is the sum of six z-scored possessions: dishwasher, separate bedroom, number of telephones, number of TVs, number of cars, and number of bathrooms. Average inter-item correlation in this index is an adequate r=.28 and alpha reliability = .68.

The **method** is OLS regression analysis. We use first differences based on the metric coefficients (identical to ordinary predicted values in this case) to show the magnitude of the effect and allow comparisons across countries. We also present the standardized effects – the ordinary standardized regression coefficient for home library size and for the index of parents' wealth, and the sheaf coefficients including linear and squared terms for the effects of parents' education and parents' occupation – to explore the importance of scholarly culture relative to other potentially strong influences on academic achievement.

Results

Scholarly culture makes a significant difference to academic performance in the pooled sample. A child from a family having 500 books could expect to score 112 points higher on this achievement test than his or her peer from an otherwise similar home containing only one book. That difference is larger than the standard deviation of the test scores. To give a sense of the importance of the effect, the standardized regression coefficient of home library size is a large 0.26. By comparison, parents' occupation is the next weightiest influence, with a sheaf coefficient of 0.17, followed by parents' wealth at 0.13. the lightweight in this collection is parents'

education with a sheaf coefficient of 0.07. In short, compared to these other generally potent influences of family background, home library size has an impressively important influence in the sample as a whole.

These findings are largely replicated in miniature for each country in the study: the effect of home library size on the achievement test score is statistically significant at the .01 level or better in each of the 43 countries, and in many cases the influence is large. The gain in achievement test scores associated with having a 500 book home library rather than 1 book at home is 100 points or more (i.e. at least one standard deviation) in 21 of the 43 countries, and over 50 points in all but 3 nations, so most nations in the sample reveal a fairly large or very large effect. In 37 of the 39 countries where parents' education has a significant effect, the standardized effect of home library size is larger. In 37 of the 43 nations where parents' occupation has a significant effect, the standardized effect of home library size is larger. In 20 of the 22 countries where parents' wealth has a significant effect, the standardized effect of home library size is larger.

Thus, scholarly culture, as indicated by home library size, in the family home gives children a significant, and generally substantial, edge in academic performance in a wide array of countries.

Parents' cultural aspirations

Parents with high cultural aspirations for their children might well take them to opera, ballet, and museums; buy art for the home; talk to them about literature; listen to classical music with them; keep a copy of Shakespeare and a volume of poetry on the coffee-table; and the like. It might be that parents with these aspirations are able to help their children do well in school, or that these are signals marking elite membership and privilege as proposed by Bourdieu. A large home library could be just one more indicator of the parents' high cultural aspirations, and important for that reason alone. The PISA data has good measures of all those, so we can see whether they explain away the effect of having a large home library.

In the pooled 43 nation data participation in the ***Beaux-Arts*** – going to opera, ballet, museums – is largely irrelevant to school achievement (beta = .02). Children from families that have ***art in the home*** also do better in school, but by an even smaller margin. Having Shakespeare or similar ***highbrow books*** about bodes well for children's achievement by a not inconsiderable amount (beta =.07) but having ***poetry books*** around is actively harmful by about the same amount (-.07). ***Talking about literature*** and society helps noticeably (.14) but ***listening to music*** together hurts just as much (-.14). So it may be that involvement in the cognitive aspects of culture helps school achievement but that involvement in more expressive and bohemian arts-poetry-music aspects can be a distraction.

But the important point is that none of this explains away the huge impact of having a large home library. In the basic model without any other cultural measures (Table 5, row 1) it has, as we have seen, a very large impact on achievement in the pooled sample (beta=.26). Adjusting for the other culture measures makes little difference to that (beta=.24, t=105.2, p<.0001). Having a large home library is important on its own, not because it is an indicator of parents' cultural aspirations and involvement.