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FUNCTIONAL LITERACY, EDUCATIONAL ATTAINMENT AND EARNINGS:
EVIDENCE FROM THE INTERNATIONAL ADULT LITERACY SURVEY

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Functional Literacy, Educational Attainment and Earnings - Evidence from the International Adult Literacy Survey*

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Abstract:

In this paper a rich and innovative dataset, the International Adult Literacy Survey, is used to examine the impact of functional literacy on earnings. The IALS surveys 12 OECD countries and sub-regions via a consistent questionnaire and includes a number of tests of numeracy and literacy, as well as basic labour market information. This paper examines the effect of these skills on labour market earnings for the Republic of Ireland, Northern Ireland, and for Great Britain. The estimates suggest that while ability has a role in determining earnings the dominant factor remains formal education. It is shown that, particularly for Great Britain, there is a positive interaction between the test score and education in determining earnings.

* Material from the International Adult Literacy Survey is used with permission of Statistics Canada. The providers bear no responsibility for the calculations contained herein nor for any interpretation made by the authors. Our thanks to Orley Ashenfelter, Alan Krueger, Brian Nolan, Hessel Oosterbeek and Ian Walker for helpful suggestions, and to seminar participants at the Irish Economics Association Conference in Westport, the ESRI (Dublin), MIT and Princeton. This research has been funded by the UCD Faculty of Commerce Research Award, the Irish Department of Education and the EU Commission under the auspices of the TSER programme. Corresponding author: Dr. Colm Harmon, Department of Economics, University College Dublin, Belfield, Dublin 4, Ireland. Phone (+353 1) 7068318. Fax (+3531) 2830068. E-mail colm.harmon@ucd.ie.

1. Introduction

The belief that education and earnings are positively related has long provoked a debate on whether the estimated relationship is biased by not including some measure for innate ability. Higher ability individuals may, on average, have the highest educational attainments. Moreover it is these individuals who can also capture higher incomes. It may be this connection, and not a direct causal one, that drives a positive education/earnings relationship. In this paper we consider the determinants of earnings when both formal education and cognitive skills are accounted for. This is important from a policy point of view when we consider the advancement in technology in our society which, it is frequently argued, requires a high degree of skill and literacy.

Our analysis is based on a little used data source, the International Adult Literacy Survey (IALS). The IALS is the first multi-country and multi-language assessment of adult literacy and cognitive ability based on scales of performance so that literacy and ability can be measured across different languages and cultural backgrounds. In this paper we examine the data for Great Britain, Northern Ireland and the Republic of Ireland.

2. The IALS Data Set & Ability Measures

The International Adult Literacy Survey (IALS) was administered by twelve governments[1] in association with the European Union, the OECD and UNESCO between 1994 and 1996.

[1] The countries involved were Australia, Canada, Belgium, Germany, Ireland, Netherlands, New Zealand, Sweden, Switzerland , United Kingdom (Great Britain and Northern Ireland separately), United States, Poland. Unfortunately the Australian data is not available to researchers outside of Australia.

The purpose of the survey was to measure the literacy level of the adult population and to provide a common mechanism that would allow comparison of literacy proficiency across countries rather than a mere count of the number of 'illiterate' people in the population. However it is clear from the study design that the definition of literacy was not intended to be focused solely on comprehension, rather is was aimed at encompassing a broad range of skills used in the context of working, schooling and home duties which are much more cognitive in nature than the term 'literacy' at first suggests (OECD 1997). An individual's attainment on these tests is (as on most such tests) likely to depend on innate abilities as well as acquired abilities (and hence on education). In other work we have measured the impact of educational attainment on test scores (e.g. Denny, Harmon, McMahon and Redmond (1999)). So while we generally refer to the tests throughout as *cognitive* one could equally interpret them as measures of *functional literacy*.

The survey consists for most countries of a sample of 2000 to 3000 from the adult civilian population aged between 16 and 65. The language of interview is each country's respective national language. Sample design was the responsibility of each country. The IALS is structured around three stages. Firstly, each individual was required to complete a background questionnaire, which provided information on age, sex, education, labour market experiences and literacy related activities. An individual was deemed to be an IALS respondent if they partially or fully completed the background questionnaire. Stage 2 involved the completion of 6 simple assignments; if the respondent answered incorrectly on more than two of these tasks the interview was terminated. This was in order to avoid re-interviewing those individuals of whom it is known that their literacy level is already very low (known as Level 1). Lastly a main booklet of tasks was given to each respondent which resulted in a score, which measured their literacy level. All assignments required the respondent to use materials from

everyday life. For example, instructions from medicine bottles, the completion of order forms and reading a newspaper listed amongst the tasks that were required in order to complete the test questionnaire.

The literacy level is measured on three scales: prose, document and quantitative. Prose literacy is the knowledge required to understand and use information from texts, such as newspapers, pamphlets and magazines. Document literacy is the knowledge and skill needed to use information from specific formats, for example from maps, timetables and payroll forms. Quantitative literacy is defined as the ability to use mathematical operations, such as in calculating a tip or compound interest. In order to provide an actual measure of literacy each individual was given a score for each task, which varied depending on the difficulty of the assignment. Scores for each scale ranges from 0-500, which is subsequently subdivided into five levels. Level 1 has a score range from 0-225 and would indicate very low levels where, for example, instructions for a medicine prescription would not be understood. The interval 226-275 defines Level 2 where individuals are limited to handling material that is not too complex and clearly defined. Level 3 ranges from 276-325 and is considered the minimum desirable threshold for most countries while Level 4 (326-375) and Level 5 (376-500) show increasingly higher skills which integrate several sources of information or solve complex problems.

As an example a task that involves reading the dosage on a medicine label falls into level 1 of the prose scale, whereas a level 4 task in the prose scale may require the respondent to answer questions from a set text. A level 1 task in the Quantitative scale may require the interviewee to add up the total number of goods ordered from an order form, while a level 4 task on the same scale may ask the respondent to calculate the total return from a compound interest table on a certain amount (OECD 1997). To be classified at a particular level the respondent had to answer uniformly at that level. The criterion used for consistent

performance was 80 per cent. The lower the score the respondent received at each scale, the lower the level and hence the lower one's measure of literacy at that scale.

In constructing the scores each country was instructed to re-score 20 per cent of tests with a 95 per cent degree of accuracy to guarantee precision of results. In addition, to ensure good quality inter-country scores a different country re-scored 10 per cent of another country's scores. The IALS were also very conscious of non-response bias. Interviewers were advised to return to households that did not give a response as many times as possible and the sample was carefully weighted to known population variables. The survey makes uses of "plausible value" sampling methodology which provides five measures of each of the three variables (prose, document and quantitative literacy) based on the fact that individuals will answer different parts of a given question. Given that each of the five is equally plausible we use the simple average to construct measures of prose, document and quantitative ability[2].

One might infer from a reading of the schooling/earnings literature that the most educated are enjoying large benefits from education. However recent studies by Cawley *et al* (1996) and Boissiere *et al* (1985) have highlighted the fact that education in the earnings function may include a measure of general intelligence or cognitive skills, which will have an effect on earnings. Boissiere *et al* (1985) find that the return to education drops by two-thirds once cognitive skills are taken into account. In addition they find that this result holds albeit on a smaller scale for manual and non-manual workers, suggesting that proficiency in literacy is essential for productivity in all job markets. Cawley *et al* (1996) find that a measure of general intelligence calculated using the technique of Principal Components does not significantly

[2] Using each of the measures separately as opposed to an average or using a principal component of the measures showed no qualitative differences to the results reported in this paper.

reduce the variance associated with wage regressions and the return to cognitive achievement is lower than the return to education, experience and family background. They also find that the choice of occupation is determined by factors other than cognitive skills.

Consistent with the results in Cawley *et al.* (1996) which cites a long tradition of research from the psychology literature we compute a combination of tests as a measure of functional literacy/cognitive ability[3]. This single measure approach is not intended to exclude other measures of ability in the tradition of the psychometric literature (see Spearman (1927) on the inclusion of other specific measures or Carroll (1993) who considers a three-way measure of intelligence). For the purposes of this paper we focus on a single measure of ability. As in Cawley *et al* (1996) we measure ability by the first Principal Component from the three test score vectors; one each for document literacy, prose literacy and quantitative literacy. This is the product of the test score vector and the eigenvector associated with the largest eigenvalue of the matrix of correlations among the IALS test scores. The principal component is a linear combination of the underlying variables (each of which have been re-scaled to have mean zero and unit variance). The weights however, which are all positive, are stochastic depending on the variables themselves.[4] By taking a composite measure of ability which is a linear combination we effectively impose a form of complimentarity between the three types of cognitive skill. This would imply, for example, in a wage equation that the marginal return to

[3] The resurgence of interest in this issue seems to stem from the Bell curve controversy of Herrnstein and Murray (1994) which examines a large number of correlations between social outcomes and scores from test batteries. The paper by Carroll(1997) revisits the issue of multi- versus uni- dimensional measures of intelligence question in the context of the Bell Curve debate.

[4] The principal components are formed separately for each country using only the observations used in the regressions. The weights or "scoring coefficients" are in fact similar across country and across the three literacy variables. We use the first component only since for each of the three datasets it accounts for 95% of the cumulative variation.

the level of wages with respect to each underlying variable is increasing in the levels of the other pair. However allowing (and testing) for substitutability is not difficult in principle.

3. Stylised Facts

For this paper we focus on the results from the IALS for Great Britain (GB), Northern Ireland (NI) and the Republic of Ireland (RoI) for prime age males. Previous studies on the determinants of earnings in Ireland, North and South, and Great Britain have concentrated on education and experience as being the main factors in influencing wages[5]. Estimates typically based on standard Mincer (1976) earnings equations show that returns to education in the Republic of Ireland are around 8% per school year for men but some non-linearities seem present in the relationship given returns are noticeably higher at the upper levels of education. Moreover, based on the limited number of micro-level datasets the returns to schooling appear to be increasing over time (Barrett, Callan, and Nolan (1999), Callan and Harmon (1999a)). Estimates for Northern Ireland are rare despite the availability of large micro-level data. Harmon and Walker (1999b) examines the returns to schooling under a number of specifications and datasets and find returns for men of around 6%[6]. For GB the estimated returns are typically of the order of 6% based on OLS but alternative specifications such as those estimated with Instrumental Variables (IV) suggest much larger returns. Moreover the returns to education appear to be rising in recent years (see Gosling *et al* (1998), Harmon and Walker (1999a)).

[5] See Denny, Harmon,Redmond *(*1999) for a review of recent findings in this literature for the Republic of Ireland, Harmon and Walker (1999b) for an analysis of Northern Ireland and Dearden (1999), Harmon and Walker (1999a) for Britain.

[6] However religion and especially gender based differences are large and some suggestion exists that migration and return migration might play a large role in labour markets in NI.

Table 1 shows standard descriptive statistics for the sample of prime age males used in this paper. The demographics appear very similar in terms of the age structure of the population. However there are some stark differences between the samples with respect to education levels. The NI and GB sample has an average schooling level some 2/2.5 years higher than the RoI[7]. Average scores on the various tests are also higher in GB/NI as compared to RoI. The variation in the composite cognitive ability measure is far higher in GB than the other samples[8].

Table 1 Descriptive Statistics - IALS Men Aged 16-64

	RoI		**NI**		**GB**	
	Mean	*Std.Dev.*	*Mean*	*Std.Dev.*	*Mean*	*Std.Dev.*
Age	37.90	*12.00*	37.50	*11.30*	38.43	*11.76*
Years of Schooling	10.73	*3.01*	13.16	*3.16*	12.94	*2.99*
Document Literacy	272.38	*56.68*	285.18	*60.09*	293.06	*57.97*
Quant Literacy	281.80	*61.98*	296.03	*62.31*	295.93	*57.85*
Prose Literacy	273.40	*54.08*	280.48	*58.03*	283.10	*52.45*
Cognitive Ability	0.00	*1.69*	0.00	*1.69*	0.00	*3.62*
N	***581***		***862***		***988***	

Table 2 reproduces parts of Table 1 but compares these key outcomes with other more general surveys for the countries in question. The age variables are very similar across the specifications. However there are some differences in the years of schooling. For NI and GB the IALS seems on average to show higher (by about one year) levels of schooling than the

[7] This is almost certainly a clear reflection of the differences in the secondary school system that prevailed until the late 1960's, specifically that NI followed Great Britain in having an established, non-fee secondary school system where the school leaving age was set at 15 (and later increased to 16). The system in the RoI was fee-paying up to 1968 and the minimum school leaving age was 14 which would account for the difference in means for the schooling variable. The abolition of fees for most schools in 1968 increased secondary school participation very significantly, see Tussing(1978) for example.

larger samples from the alternative data sources. However for the RoI sample this is reversed with IALS showing a lower number of years, again by about one year. However the IALS averages are all within one standard deviation of the averages in the alternative datasets.

Table 2 IALS/General Surveys Comparison - Men Aged 16-64, Sample Year 1994

	RoI *Mean*	**NI** *Mean*	**GB** *Mean*
AGE:			
IALS	37.9	37.5	38.4
ALTERNATIVE	36.8	37.6	37.3
YEARS OF SCHOOLING			
IALS	10.7	13.2	12.9
ALTERNATIVE	11.5	11.9	11.9
SAMPLE SIZE			
IALS	581	862	988
ALTERNATIVE	2080	4263	5739

Living In Ireland Survey(RoI), Continuous Household Survey (NI) and General Household Survey (GB)

Table 3 focuses on the relationship between schooling and ability level. We report the percentages with different levels of schooling in each quartile of the ability level score produced earlier. Again a number of differences appear between the two samples. Take for example the first quartile of the ability score. Some 72% of the sample in this quartile have between zero and 9 years of schooling for the RoI whereas the equivalent figure for NI is around 9.5% and for GB around 7%. A more general observation is the high correlation between schooling and ability - one observes fewer individuals of lower schooling levels in the

[8] The proportion leaving school with the lowest credential level is dramatically higher in the RoI sample. Moreover possession of credentials to university level is also higher in the NI sample, but the differences here are not as dramatic.

higher quartiles of ability. This pattern was also noted by Cawley *et al*(1998) for the US where it is even more pronounced[9].

Table 3 Distribution of Schooling by Ability Quartile

	RoI				***NI***				***GB***			
Schooling	***Q1***	***Q2***	***Q3***	***Q4***	***Q1***	***Q2***	***Q3***	***Q4***	***Q1***	***Q2***	***Q3***	***Q4***
0-9 years	0.72	0.44	0.27	0.14	0.09	0.06	0.02	0.02	0.07	0.04	0.02	0.00
10-13 years	0.22	0.46	0.55	0.43	0.82	0.70	0.53	0.41	0.83	0.75	0.63	0.37
14-17 years	0.06	0.08	0.15	0.37	0.06	0.16	0.30	0.32	0.09	0.16	0.26	0.42
18+ years	0.00	0.02	0.03	0.06	0.03	0.08	0.16	0.24	0.00	0.05	0.10	0.21

4. Estimation & Results

Estimation of earnings functions for the IALS data is complicated as the income data is only observed to fall in a certain interval on a continuous scale. IALS wage data is constructed on the basis of assigning individuals to the appropriate quintile of the wage distribution, providing a 5-category banded income variable. Stewart (1983) shows that better estimates are available by exploiting a distributional assumption for the continuous but unobserved variable with a maximum likelihood estimator than *ad hoc* procedures such as using the mid-points of the wage bands.

In this framework the unobserved continuous wage data is mapped into the discrete observed income bands. Some observations are left-censored - we know that the unobserved income is less than or equal to a observed censoring value y_L.

[9] Cawley *et al* (1998) emphasize how the presence of mostly empty cells "off the diagonal" (that is with either high ability and low education or vice versa) makes it difficult to identify the contribution of the return to ability on the return to education.

Similarly some observations are right censored - the unobserved income is less than or equal to an observed censoring value y_R. The estimator is a natural generalisation of estimation of the censored normal which is in turn a generalisation of the well known tobit estimator.

The log likelihood function is:

$$
\begin{aligned}
L = & -\frac{1}{2}\sum_{j\in C}\left[\left(\frac{y_j - x\beta}{\sigma}\right)^2 + \log 2\pi\sigma^2\right] \\
& + \sum_{j\in L}\log\Phi\left(\frac{y_{Lj} - x\beta}{\sigma}\right) \\
& + \sum_{j\in R}\log\left[1-\Phi\left(\frac{y_{Rj} - x\beta}{\sigma}\right)\right] \\
& + \sum_{j\in I}\log\left[\Phi\left(\frac{y_{2j} - x\beta}{\sigma}\right) - \Phi\left(\frac{y_{1j} - x\beta}{\sigma}\right)\right]
\end{aligned}
\tag{1}
$$

where $\Phi(.)$ is the standard cumulative normal and the data are partitioned into subsets C,L,R, and I which are respectively point data, left censored, right censored and interval data. In our data C is empty. The vector of parameters of interest β plus σ are chosen to maximize this likelihood using a modified Newton-Raphson routine.

Note that our earnings data specifies which of five bands the individuals *annual* labour market earnings are. The top category is unbounded. Using data on hours worked per year (which varies across individuals and is measured continuously) we can estimate a model for hourly earnings, where effectively the bands will vary across individuals. Estimation proceeds under the assumption that hourly earnings are log-normally distributed which is generally found to be a reasonable assumption (with the possible exception of the upper tail which might be better characterised by a Pareto distribution). We also calculate robust asymptotic standard errors using the well known method associated *inter alia* with Huber and White (see Gould & Sribney (1999) for details of estimation and computation).

Aside from the complications due to the estimation of a model with a banded dependent variable, the model is relatively standard. Our estimates are based on the following earnings function:

$$y_i = \beta S_i + \mathbf{A_i}\,\mathrm{t} + \mathbf{X_i}\mathrm{y} + u_i, \qquad (2)$$

where y_i is (the log of) hourly earnings, S is a measure of schooling (typically the total number of years of schooling) and **A** is a set of one or more ability score variables. Crucially we have measures of three different types of literacy/cognitive skill, defined as prose, document and quantitative literacy. We allow these score variables to have separate effects on wages. Alternatively we use Principal Components to construct a composite measure of ability as outlined earlier. **X** is a matrix of other exogenous variables. Under the interval regression method we are still able to give the coefficients the usual interpretation of (approximately) the proportionate effect on hourly earnings of a unit increase in the corresponding variable.

The decision of whether to use years of schooling or highest level of education completed (also available in the IALS) is partly a matter of interpretation and to some extent a matter of taste. In the conventional human capital model additional years in education add extra human capital so years of schooling are the appropriate variable. With either a signalling or credentialist model it makes sense to include measures of the highest level of education completed.

In practice it is often difficult to distinguish between such approaches empirically and the present paper makes no attempt to do so, and frequently the implied rates of return from the two approaches give similar results (where, for example the return to a primary degree is

often worth about three of four years worth of education)[10]. Moreover using years of schooling facilitates comparisons with the extensive international literature on the subject.

The estimates of the earnings equations are presented in Table 4, where we summarise with respect to the education and cognitive skill variables (the model also includes controls for experience (age and age-squared), firm size and regional location dummies – full estimates are available from the authors). Specification (1) ignores the ability measures and includes a measure of years of schooling. The returns to schooling are 8% for RoI, 6% for NI and around 9% for GB. The RoI and NOI results are consistent with the findings of other researchers such as Callan and Harmon (1999) and Harmon and Walker (1999b). However the figure for GB is considerably larger than previously estimated returns. This might in part be explained in that the IALS estimates presented in Table 4 are more recent than most returns figures. Given the findings in Gosling *et al*. (1999) which suggest some recent increases in the returns to schooling in GB this return of 9% could reflect this upward movement in the returns.

Specification (2) includes the three literacy variables directly. While the estimates of the other coefficients in the model remain unchanged the returns to schooling fall in each of the countries. However only in the case of GB is this fall statistically significant. The measures of ability have little direct effect, and in the case of the RoI there is no effect whatsoever. The quantitative literacy variables seem to have the biggest effect. There are some curiosities. The results for NI suggests document literacy has a statistically *negative* impact on hourly earnings. The intuition for this is far from obvious: why would one acquire a skill which reduces one's

[10] See Krueger & Lindahl (1998) for evidence in favour of the linear-in-schooling model. Denny & Harmon(1999) use the IALS data and find evidence of "sheepskin" effects.

earnings? If there is a consumption benefit from document literacy it could explain why we observe negative effects on wages[11].

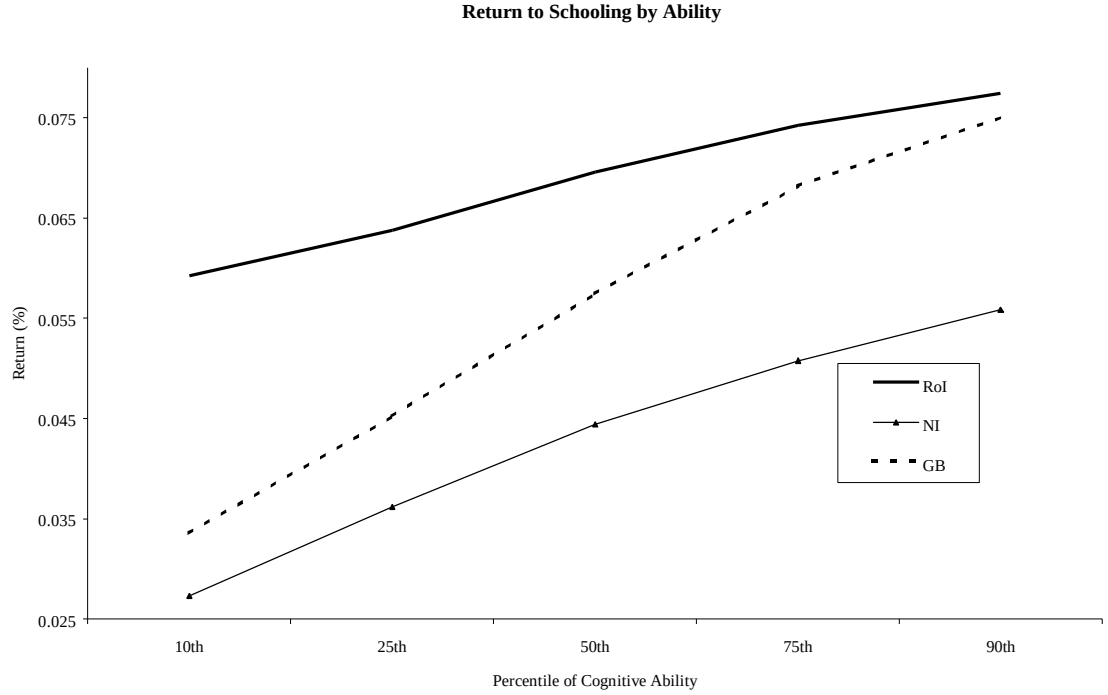
Specification (3) simply focuses on the quantitative literacy variable and is statistically significant for each country but without altering the estimated return to schooling by much. Specification (4) moves to the single composite measure of literacy using the principal component method. In all cases this measure has a positive effect on earnings and is well determined in the usual sense. However inference is somewhat problematic. In order to get an idea of the size of the effect, consider variations in the measure for an individual at the median level of cognitive ability. For the RoI, an individual at the 1st quartile earns approximately 6% less than one at the median. An individual at the 3rd quartile earns about 4.7% more than at the median[12]. By comparison for NI the penalty for being at the first quartile rather than the median is about 10% and being at the 3rd quartile is worth 7.7% over the median, while for the UK the penalty is 15% and the premium is 13%. The numbers are larger for NI and GB largely because the estimated coefficients are bigger but also because of the spread of the distribution.

Cognitive ability may be best thought of as having an impact via an interaction with formal education[13]. In the final specification (5) we include both the schooling measure and this interacted with cognitive ability[14]. The results are again significant for both the interaction term and the direct effect of schooling, and indicate that the returns to schooling rise with ability, particularly in the United Kingdom. Interpretation of these result is not

[11] See Gottfredson (1997) for evidence that intelligence affects both social and economic life. Arguably prose literacy is more likely to generate this consumption effect through leisure time reading.
[12] For example, using a coefficient of 0.023 and given the quartiles of -2.19, 0.37 and 2.41.
[13] One could consider the returns to schooling separately for different parts of the ability distribution. Given the size of the sample this is probably not practical. Ashenfelter & Rouse(1998) find, using the US National Longitudinal Survey of Youth, that returns to education do *not* depend on measured ability.

straightforward: we compute the ability/earnings profile for a year of schooling[15]. A plot of this is given in Figure 1. The relative coefficients reflect in the heights of the lines. The return to schooling is indeed higher for higher ability individuals as compared to lower ability. The difference between the 90th and10th percentiles is not significant for RoI or NI. However the GB returns appear to be particularly affected by ability, ranging from around 2.5% to over 6.5% across the ability range. There is also a slight kink in the profile for the UK at the 75th percentile suggesting that the ability premium slows down once a certain skill level is reached.

Figure 1 Estimated Returns to Schooling for Different Ability Levels



[14] Alternative specifications, including just the interaction and all levels and interactions, were also estimated. Full estimates are available on request.

[15] This does not take into account that tests were administered when individuals had completed different years of education.

5. Conclusions

This paper examines the impact of cognitive ability/functional literacy and education on hourly earnings in the Republic of Ireland, Northern Ireland and Great Britain using the International Adult Literacy Survey. Using a composite measure of ability we find well determined positive effects whereas quantitative ability has a dominant role when these tests are examined separately.

The measures used in this paper are objective, based on carefully administered tests. An alternative approach is to use self-assessed measures of literacy. Charette and Meng (1994) compare objective and subjective measures and emphasise the scope and consequences of measurement error. Nonetheless an individual's perception that he or she has a literacy problem may be of interest in its own right (since it might signal, in addition, low self-esteem for example).

Wages are not the only mechanism through which literacy may affect an individuals labour market chances. We have taken employment as given but it seems plausible that the probability of an individual being employed may also depend on their cognitive skills (Riverabatiz (1992) and Raudenbush and Kasim (1998)). However, in general the study of the effect of the skills measured in these tests on economic behaviour, while growing rapidly, is in its relative infancy by comparison with our understanding of factors such as education, trade unions or training. Therefore we still have a lot to learn about how best to model the relationship. For example we have assumed that earnings are a continuous function of our measures of ability. However it could be the case there are fundamental discontinuities in the relationship: an individual who is functionally illiterate (however defined) may be trapped in a low paid job.

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Table 4 Earnings Function Estimates – Men Aged 16-64.

		(1)		*(2)*		*(3)*	
		b	***se***	***b***	***se***	***b***	***se***
Republic of Ireland	Years of Schooling	0.082*	*0.012*	0.070*	*0.013*	0.069*	*0.01*
	Document Literacy	--	--	-0.002	*0.002*	--	--
	Prose Literacy	--	--	0.000	*0.002*	--	--
	Quant Literacy	--	--	0.003	*0.002*	0.002*	*0.00*
	Cognitive Ability	--	--	--	--	--	--
	Schooling x Cognitive Ability	--	--	--	--	--	--
	Log Likelihood	-722.1		-722.1		-722.5	
	N	541		541		541	
Northern Ireland	Years of Schooling	0.062*	*0.010*	0.046*	*0.010*	0.046*	*0.01*
	Document Literacy	--	--	-0.004*	*0.002*	--	--
	Prose Literacy	--	--	0.001	*0.002*	--	--
	Quant Literacy	--	--	0.006*	*0.002*	0.003*	*0.00*
	Cognitive Ability	--	--	--	--	--	--
	Schooling x Cognitive Ability	--	--	--	--	--	--
	Log Likelihood	-1200.8		-1177.5		-1181.5	
	N	862		862		862	
Great Britain	Years of Schooling	0.089*	*0.009*	0.057*	*0.009*	0.058*	*0.00*
	Document Literacy	--	--	-0.002	*0.002*	--	--
	Prose Literacy	--	--	0.002*	*0.001*	--	--
	Quant Literacy	--	--	0.004*	*0.001*	0.004*	*0.00*
	Cognitive Ability	--	--	--	--	--	--
	Schooling x Cognitive Ability	--	--	--	--	--	--
	Log Likelihood	*-1090.8*		*-1053.3*		*-1054.6*	
	N	*988*		*988*		*988*	