



Educational attainment in the OECD, 1960–2010. Updated series and a comparison with other sources [☆]



Angel de la Fuente ^{a,*}, Rafael Doménech ^b

^a FEDEA and Instituto de Análisis Económico (CSIC), Jorge Juan 46, bajo, 28001 Madrid, Spain

^b BBVA Research and Universidad de Valencia, Castellana 81, 28046, Madrid, Spain

ARTICLE INFO

Article history:

Received 7 November 2014

Revised 1 February 2015

Accepted 16 May 2015

Available online 2 June 2015

JEL:

O40

I20

O30

C19

Keywords:

Schooling

Human capital

Measurement error

ABSTRACT

This paper describes the construction of updated series on the educational attainment of the adult population for a sample of 22 OECD countries covering the period 1960–2010. These series are then compared with (the OECD subsample of) the latest available version of other cross-country data sets on average years of schooling that are commonly used in the literature. Finally, statistical measures of the information content of the different series are constructed using the procedure developed by Krueger and Lindhal (K&L, 2001) and de la Fuente and Doménech (D&D, 2006). The exercise shows that there are important differences in quality across data sets and suggests that successive revisions have succeeded in increasing their signal to noise ratios.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

The construction of homogeneous schooling series for broad samples of countries has been the main goal of a significant and growing number of papers over the last three decades. These series are an important input for empirical analyses of the determinants of economic growth and of other issues. They are generally constructed using data from international compilations of educational attainment and/or enrollment data from UNESCO and other organizations and employing different procedures to build up stock

estimates from enrollment data and/or to fill in missing stock observations. The relevant literature includes papers by Barro and Lee (B&L, 1993, 1996, 2001, 2013), Cohen and Soto (C&S, 2007), de la Fuente and Doménech (D&D, 2002, 2006, 2012), Kyriacou (1991), Lau, Jamison, and Louat (1991), Lau, Bhalla, and Louat (1991), Lutz, Goujon, Samir, and Sanderson (2007), Nehru, Swanson, and Dubey (1995) and Samir et al. (2010).

The present paper updates and extends our earlier work in the area. Section 2 describes the construction of series on the educational attainment of the adult population for a sample of 22 OECD countries covering the period 1960–2010. These series are a revised and extended version of the data set constructed in de la Fuente and Doménech (D&D, 2002, 2006) that incorporates a fair amount of new direct information and extends the sample period by over fifteen years. Country details are contained in a separate Appendix that is available as D&D (2014). Section 3 compares our series with three other data sets that appear to be particularly useful for empirical researchers because of their quality and coverage. We focus in particular on the most recent available versions

[☆] This paper is part of a research project cofinanced by BBVA Research and Fundación Rafael del Pino. We gratefully acknowledge additional support from the Spanish Ministry of Economics and Competitiveness through grants ECO2014-59196-P and ECO2014-53150-R. We would like to thank the editor of this journal and two anonymous reviewers for their useful comments and suggestions.

* Corresponding author. Tel.: +34 639288702.

E-mail address: Angel.delaFuente@uab.es (A. de la Fuente).

of the schooling series constructed by Barro and Lee (B&L), Cohen and Soto (C&S) and Lutz et al (L&S+), working in all cases with the same OECD subsample covered by our series.¹ Statistical measures of the information content of the different series are constructed in Section 4 using the procedure developed by Krueger and Lindhal (K&L, 2001) and refined in D&D (2006). The exercise implies that there are important differences in quality across data sets, with our own data and C&S's series clearly outperforming the other two data sets we consider, and suggests that the successive revisions of the different series have generally succeeded in increasing signal to noise ratios. There are also two appendices. The first one briefly reviews the construction of the B&L, C&S and L&S+ data sets and the second one extends part of our work to a large sample of non-OECD countries.

2. Extended schooling series for a sample of OECD countries

The data set described in this section incorporates two major changes relative to our 2006 estimates of schooling levels.² First, we have extended the series from 1990 or 1995 to 2010. And second, we have incorporated a fair amount of new information taken mostly from the websites of national statistical institutes. As a result of this, our new series rely almost exclusively on national sources. To the extent possible, we have avoided the use of compilations produced by UNESCO and other international organizations whose attempts to homogenize the data may be counterproductive on occasion.

Our overall strategy for the construction of long series on educational attainment has been the same as in our previous papers: we have collected all the information we could find on the educational attainment of the adult population (aged 25 and over) in the countries of interest and used our best judgment to try to construct a plausible time series for each one of them. For most countries, reasonably complete educational data for recent years can be found on their National Statistical Institute's website. In many cases, this source provides a fairly detailed breakdown by age group that can be exploited to construct backward projections for earlier years. After exploiting these data, we have generally worked backwards in time, drawing on whatever other sources were

Table 1
Attainment levels and codes.

Code	Level
L0	Illiterates
L1	Primary schooling
L2.1	Lower secondary schooling
L2.2	Upper secondary schooling
L2	Total secondary schooling = L2.1 + L2.2
L3.1	Higher education, first cycle or short post-secondary courses
L3.2	Higher education, second cycle or full-length courses
L3	Total higher education = L3.1 + L3.2

available and trying to avoid unreasonable jumps in the series by choosing the most plausible figure when several were available for the same year, and by reinterpreting some of the data (as referring to broader or narrower schooling categories than the reported one) when it seemed sensible to do so. Missing observations were then filled in a variety of ways. Where possible, we interpolated between available observations. Otherwise, we have relied on miscellaneous information from a variety of sources in order to construct plausible estimates of attainment levels. We have avoided the use of flow estimates based on enrollment data because they seem to produce implausible time profiles, but we have made occasional use of enrollment data to complement other sources.

Clearly, the construction of our series involves a fair amount of guesswork (although considerably less than in the previous version). Our methodology looks decidedly less scientific than the apparently more systematic estimation procedures used by other authors starting from supposedly homogeneous data produced by UNESCO and other international organizations (see for instance B&L, 1996, 2001; C&S, 2007). However, even a cursory examination of the data shows that there is no such homogeneity (see D&D, 2006). Hence, we have found it preferable to rely on judgment to try to piece together the available information in a coherent manner than to take for granted the accuracy of the primary data. As we will show below, the results do look more plausible than most existing series, at least in terms of their time profile, and perform rather well in terms of a statistical indicator of data quality.

2.1. Attainment categories and average durations

We aim to provide estimates of the fraction of the population aged 25 and over (for short, population 25+ from now on) that has attained each of the levels of education shown in Table 1: illiterates (*L0*), primary schooling (*L1*), lower and upper secondary schooling (*L2.1* and *L2.2*) and two levels of higher education (*L3.1* and *L3.2*). Whenever possible, we break down upper secondary schooling attainment into an academic and a vocational component (*L2.2ac* and *L2.2voc*). We have tried (with uncertain success) to include upper-level vocational courses (ISCED 5 studies according to the international standard classification of educational attainment levels) in the first level of higher attainment, *L3.1*. We report *L0* only for the four countries where illiteracy rates are significant during most of the sample period (Portugal, Greece, Spain and Italy). For the rest of the sample, the

¹ For Barro and Lee, we use version 1.2 (released in 2011) of the data set described in B&L (2013), which is available at <http://www.barrolee.com>; for D&D we use version 3.1, as described in D&D (2014), which can be downloaded from <https://ideas.repec.org/p/fda/fdaddt/2014-14.html>; for L&S+, we work with an unpublished "current working version" supplied in 2012 by K. C. Samir, to whom we are grateful, and for C&S we use an updated version of their (2007) data set which was downloaded from <http://soto.iaecscic.org/Data.htm> in 2012. Since the C&S data come only at 10-year intervals, we use linear interpolation to complete the quinquennial series with which we work. We thank K. C. Samir and M. Soto for providing the latest available versions of their data.

² Relative to version 3.0 of this series as described in de la Fuente and Doménech (2012), the main changes in the current paper have been the introduction of Mexico in the sample and a revision of the data for Spain and Portugal. For both countries we have incorporated data from the 2011 census. For Portugal, we have also incorporated direct data from the censuses of 1960 and 1970, have switched from an entry to a completion criterion and have modified slightly the definition of *L0*, which now includes only illiterates in the strict sense (and not those who have had no formal schooling but can read and write).

Download English Version:

<https://daneshyari.com/en/article/354351>

Download Persian Version:

<https://daneshyari.com/article/354351>

[Daneshyari.com](https://daneshyari.com)