



JRC TECHNICAL REPORTS

# ADULT PARTICIPATION IN LIFELONG LEARNING

**The impact of using a 12-months or 4-weeks reference period**

*Technical Briefing*

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2014

**European Commission**

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JRC92330

EUR 26918 EN

ISBN 978-92-79-44004-5

ISSN 1831-9424

doi:10.2788/43117

Luxembourg: Publications Office of the European Union, 2014

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Printed in Italy

## Useful definitions for understanding Lifelong learning

### a) Lifelong learning

Lifelong learning encompasses all purposeful learning activities, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural or sporting activities

Source: Eurostat

### b) formal education

corresponds to education and training in the regular system of schools, universities, colleges and other formal educational institutions that normally constitute a continuous 'ladder' of full-time education for children and young people (often completed by the age of 25)

Source: Eurostat

### c) non formal education and training

any organized and sustained educational activity that does not correspond to the definition of formal education. Non-formal education and training may or may not take place in educational institutions and cater to persons of all ages. It may cover educational programs to impart adult literacy, basic education for out-of-school children, life skills, work skills, and general culture. It may also include private lessons with a teacher or tutor, for example piano lessons or foreign language lessons.

Source: Eurostat

## Introduction

The focus of this technical briefing is the participation to adult lifelong learning and how the use of different methods for collecting primary data on this topic may result in contrasting outcomes. We aim to provide an insight on the state of the art about the different surveys available and the problems that arise in terms of comparability and coverage, and to provide some suggestions for data users in the field of adult participation to lifelong learning.

More specifically, the briefing will examine the impact of using a 12-month or 4-week reference period on access to and intensity of adult learning. We will investigate how the different coverage periods can affect the comparability among the most relevant labour force surveys (we will focus on AES, LFS and PIAAC).

The need for addressing the problem from a technical standpoint arises from the fact that AES data result not to be comparable with LFS data. In fact, it has been noticed that rates of participation in lifelong learning were systematically higher using the Adult Education Survey (AES) compared to the Labour Force Survey (LFS) or other labour force surveys<sup>1</sup>. Besides, it has been noticed that this pattern was persistent among all the breakdowns and subgroups, and it is particularly relevant for statistics on non-formal training: the difference in rates of participation between AES and LFS were higher for non-formal learning rather than for formal learning. As a consequence, data from AES result not to be comparable with LFS data.

Some possible explanations that have been elaborated in order to take into account these differences refer to:

**a) Different coverage period:** AES considers the preceding 12 months to the interview, while LFS considers the preceding 4 weeks from the interview.

Clearly, considering a time span of 12 months is much more inclusive and tends to provide higher proportions since the likelihood of finding an individual who participated in lifelong learning in the previous 12 months is higher than the likelihood of finding an

<sup>1</sup> See Eurostat, "Methodological Notes. Data from labour force survey and adult education survey." 14.03.2011

#### e) *informal learning*

corresponds to self-learning through the use of printed material, computer-based learning/training, (internet) web-based education, visiting libraries, etc.. However, this type of learning is not always covered by statistics on lifelong learning

Source: Eurostat

#### d) **Continuing vocational training**

training measures or activities which have as their primary objectives the acquisition of new competencies or the development and improvement of existing ones and which must be financed at least partly by the enterprises for their employees who either have a working contract or who benefit directly from their work for the enterprise such as unpaid family workers and casual workers. Persons employed holding an apprenticeship or training contract should not be taken into consideration for CVT (these could be relevant candidates for Initial Vocational Training – IVT)

Source: Eurostat

#### e) **Adult participation in lifelong learning**

Participation is defined as the share of population (aged 25-64) who participate in education and lifelong learning activities. The lower bound of the age bracket (25 years old) corresponds to what –ideally- would be the end of formal tertiary education; the upper bound (64 years old) corresponds to the last year of working age (considered in statistics on European labour force).

Participation is measured in surveys using different time ranges, i.e. participation in the last 4 weeks or last 12 months, generating problems of comparability.

Source: CRELL

individual who only received training in the previous 4 weeks. As a consequence, problems of comparability among two surveys that use different methods arise.

**b) Different structure of the survey:** AES is a standalone survey on lifelong learning only, thus questions here are more detailed, well-structured and designed to better capture all the aspects of lifelong learning;

**c) Different coverage of non-formal activities:** in AES non-formal activities are dominated by private lessons (included also in LFS) but also by “guided on-the-job training” which however, is not included in LFS.

Once participation rates of AES have been adjusted by removing “guided on-the-job training” from the set of responses, AES rates decrease and get a little closer to LFS, but still remain higher. Besides, AES does not require a minimum duration for training activities, which implies that a higher number of courses can be included in AES than LFS. In fact, LFS requires for formal education to be considered, that the course lasts for at least half a year.

However, in this document we focus only on the first point mentioned: the different reference period (4 weeks for LFS, 12 months for AES).

This technical briefing is composed by three main parts. The first one provides a general framing of the issue, putting order among different definitions and systematizing empirical evidence already available from different sources. The second part provides some descriptive statistics on how participation rates vary according to the different datasets considered (LFS, AES, CVTS, PIAAC); country rankings and variations among subgroups per each of the datasets considered (where subgroups are available) and some additional descriptive statistics from CVTS. Finally, the third section includes conclusive remarks and some recommendations for policy design.

## 1. Available datasets for analysing adult participation in lifelong learning

Statistics about adult participation in Lifelong learning can be drawn from four main datasets:

AES	<ul style="list-style-type: none"><li>• The Adult Education Survey is a household survey, targeting people aged 25-64, which is part of the EU Statistics on lifelong learning. The current survey (AES 2011) collects information on 225000 individuals in 30 countries: BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK, NO, CH and RS (Republic of Serbia).</li></ul>
LFS	<ul style="list-style-type: none"><li>• The Labour Force Survey is a large household sample survey providing quarterly results on labour participation of people aged 15 and over as well as on persons outside the labour force. The data collection covers the years from 1983 onwards. The Labour Force Surveys are conducted by the national statistical institutes across Europe and are centrally processed by Eurostat. It includes the 28 Member States of the European Union and in addition to Iceland, Norway and Switzerland.</li></ul>
CVTS	<ul style="list-style-type: none"><li>• The Continuing vocational training in enterprises survey (CVTS) gives an overview of the companies' training policies in the European Union (EU). The survey is based on interviews with companies with 10 or more employees from the business economy: almost all economic sectors apart from agriculture, forestry and fishing, public administration and defence, compulsory social security, education, human health and social work activities are involved. It was carried out in the 28 EU Member States and in Norway.</li></ul>
PIAAC	<ul style="list-style-type: none"><li>• The Programme for the International Assessment of Adult Competencies is an international survey that measures key cognitive and workplace skills needed by individuals to participate in society and for economies to prosper. The survey assesses the skills of about 150 thousands working age adults (16-65) surveyed in 24 OECD countries. European countries covered in PIAAC are: Austria, Belgium (Flanders), Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Netherlands, Poland, Slovak Republic, Spain, Sweden, and United Kingdom (England/Northern Ireland).</li></ul>

Information available on lifelong learning for each of the datasets is summarized in Table A.1

## A note on CVTS

With respect to the purpose of our work it is important to highlight that CVTS data are not comparable with AES and LFS since the subject interviewed changes: here the interviewees are employers and not individuals in the labour force. Thus, CVTS provides indirect information (mediated by the employer) on:

- a) only a particular category of training (non formal and informal –see below the categories of self-directed study or learning circles-)
- b) only employed individuals (unemployed and inactive are not considered)
- c) only employed individuals in small/medium to big companies (firms with less than 10 employees are excluded).

The categories of training included in CVTS are:

- **Internal CVT courses** (designed and managed by the enterprise itself)
- **External CVT courses** (designed and managed by organizations which are not part of the enterprise itself, e.g. third party organizations. The course is then selected and ordered/ purchased by the enterprise)

Other forms of CVTS:

- **Guided on-the job-training** (planned periods of training, instruction or practical experience in the work place using the normal tools of work, either at the immediate place of work or in the work situation)
- **Job-rotation, exchanges, secondments or study visits** (these are considered as “other” forms of CVT only if these measures are planned in advance with the primary intention of developing the skills of the workers involved. Transfers of workers from one job to another which are not part of a planned developmental program should be excluded)
- **Learning or quality circles** (groups of persons employed who come together on a regular basis with the primary aim of learning more about the requirements of the work organization, solving production and work place based problems, through discussion)
- **Self directed learning** (when an individual engages in a planned learning initiative where he or she manages the training time and the place at which the training takes place, using different learning media. Learning can take place in private, public or job-related settings. Self directed learning might be arranged using open and distance learning methods, video/audio tapes, correspondence, computer based methods (including internet, e-learning) or by means of a Learning Resources Centre.
- **Attendance at conferences, workshops, trade fairs and lectures** (considered as training actions only when they are planned in advance and where the primary intention of a person employed attending them is training/learning)
- 

Nonetheless, aware of these issues of comparability, we will provide in the following sections some descriptive statistics about participation rates in CVTS.

## 1.1 State of the art

Previous research<sup>2</sup> summarized the **pros and cons** of using the two reference periods:

### 4-WEEKS REFERENCE PERIOD

#### Pros:

- consistent with the reference period of other LFS variables
- reduces the burden on the respondent (e.g. LFS is already a long and complex interview)
- reduces problems associated to lack of memory: asks for the most recent training
- time series are available from 1992

#### Cons:

- 4-weeks reference period is a measure of “training events” dividing the year in blocks of four weeks: it may provide the same value for two different situations
- it does not measure the number of individuals involved:  

(e.g. in country A the 10% rate might correspond to the same individuals all over the year, but in country B the 10% rate per each quarter may correspond to 4 times the population of country A all over the year)
- it is exposed to seasonal effects: results can vary considerably according to the quarter selected. The timing when the question is posed is crucial, with the risk of biased results

### 12 MONTHS REFERENCE PERIOD

#### Pros:

- it is a more comprehensive measure of participation, permitting to include more individuals (also those who completed an educational cycle just little more than 4 weeks before)
- including more individuals results in a larger N, which also allows to analyse sub-groups (when the N is small sub-groups are too little and unsuitable for specific analysis)
- less exposed to seasonal effects
- consistent with other surveys on participation on education and training (AES and CVTS)

#### Cons:

- problems related to the effective time over which the questions would apply: if the question is asked on the first quarter of the year it covers the prior year, if asked in quarter 4 it mostly covers the current year (for this reason quarter 4 is suggested as the best solution)
- memory effect: rethinking to previous 12 months might result in an underestimation of short time activities, incidental non formal activities, or also in the length of the training (how many hours)

<sup>2</sup> Eurostat (2012) Pros and Cons of different reference periods; Eurostat (2013) Working group on Labour Market Statistics, Document for item 2.5 of the agenda (Annex)

Basically, the discussion can be summarized in the following terms:

a) if we are interested in observing the number of persons participating in education and training in a particular moment, better to look at the 4 week reference period (defined as **INTENSITY** of participation).

This is a sort of snapshot of the situation in a given country at that moment in time. It however, implies a risk of misinterpretation: since the variable does not measure individual paths along the year, if an individual completed an educational program but the question is asked just a little later than 4 weeks after the completion, he/she figure as not involved in any education or training.

b) if we are interested in knowing how many individuals were involved in any education or training activity in a given year, better to use the 12 months reference period (looking at general **ACCESS** to education and training).

Since the 12 months period reflects more the school year, it allows including in the count also individuals who changed educational institution or just completed an educational program or dropped out.



## 2. Discussion

### 2.1 Variation by country

The aim of this section is to assess how the statistics on ALL vary according to the 3 datasets considered<sup>3</sup>. In order to make the surveys comparable, we rely on the following criteria:

1. Focus on the population aged 25-64<sup>4</sup>
2. Focus on year 2011<sup>5</sup>
3. Focus on formal and non-formal learning, leaving aside informal learning.

For the three surveys considered we report in Table A.2 the proportion of individuals, aged 25-64, participating in formal and non-formal education.<sup>6</sup> In Table A.3 we rank the countries, from the highest share of lifelong learning participation to the lowest share, according to the different definitions and surveys. These two tables show that using different datasets, and focusing on different angles of lifelong learning, **we get different pictures**.

Thus, in order to assess if the three measures calculated using the different surveys provide a coherent message, we calculate the **Kendal ranks correlation coefficient**, which represents the concordance between two columns of ranked data. More in details, Kendall tau is the ratio of the difference of the concordant pairs and the discordant pairs<sup>7</sup>. In particular we use the Kendall Tau b, which makes adjustment for ties.

In Table 1 we report these coefficients. The Table is split into two panels: the panel on the left hand side presents the results of the rank correlation of the three measures (LFS, AES and PIAAC), which can be calculated only between countries participating in PIAAC (namely Austria, Belgium,

#### *Kendal ranks correlation coefficient:*

- It is a non-parametric measure of the agreement between two rankings.
- It is the ratio of the difference of the concordant pairs (of ranks) and the difference discordance pairs (of ranks)
  - A concordant pair is when the rank of the second variable is greater than the rank of the former variable.
  - A discordant pair is when the rank is equal to or less than the rank of the first variable
- It varies between -1 and 1, with values close to -1 meaning that two measures rank objects in the opposite way, values close to 0, meaning that the rankings are independent, and values close to 1 meaning that the rankings are concordant.

<sup>3</sup> We remind here that the CVTS dataset cannot be comparable with AES, LFS and PIAAC since the respondent is different.

<sup>4</sup> While PIAAC and LFS have data on a broader age range, AES focuses on the population aged between 25 and 64, thus we restrict the sample in all the survey to this age group.

<sup>5</sup> While LFS provide quarterly or yearly data, both AES and PIAAC were undertaken in 2011 only, thus we focus on this year.

<sup>6</sup> For the data coming from LFS and AES we rely on Eurostat extraction, while for PIAAC we calculate the proportion from the microdata.

<sup>7</sup> A concordant pair is when the rank of the second variable is greater than the rank of the former variable.

A discordant pair is when the rank is equal to or less than the rank of the first variable

Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom). The panel on the right hand side presents the results of the rank correlation of the measures built using only LFS and AES and considers all EU27 countries<sup>8</sup>. The correlations are calculated for the ranking based on participation in both formal and non-formal (upper part of the Table), participation in non-formal education only (middle part) and participation based on formal education only (bottom part).

**Kendal ranks correlation coefficients** show that in general concordance is positive and significant, meaning that the different measures seem to rank the countries similarly. If we focus on the concordance between AES and LFS in the EU27 countries, we notice that the coefficients are positive and significant and they are around 0.5 in the three cases considered (formal and non-formal, formal, and non-formal).<sup>9</sup> This implies that if the interest lies in simply ranking countries according to participation in lifelong learning, using information coming from one survey or the other does not change dramatically the results.<sup>10</sup>

If we include also on PIAAC, restricting our analysis to the sub-sample of European countries participating in this survey, we notice differences when ranking participation based on

non-formal or formal learning. When considering formal learning, the coefficients associated to the three possible pairing of surveys (AES-LFS; AES-PIACC; LFS-PIAAC) are positive and significant and close to 0.5, pointing to a concordance of the rankings among the 3 surveys. While when focusing on non-formal learning, we notice that the greater concordance is between PIAAC and LFS, and the lower concordance is between PIAAC and AES and the lowest is between PIAAC and AES. This is an unexpected result since then concordance seems not to be a matter of timing (12 months –PIAAC and AES – vs 4 weeks – LFS –). But we may hypothesize that differences could emerge due to the different formulation of lifelong learning questions, which are especially pronounced when dealing with non-formal education. In addition, there are no extreme differences in the sign, magnitude and significance of the Kendal coefficients estimated between LFS and AES when using the EU27 countries or the European countries in PIAAC. Nevertheless, it seems that when considering participation to non-formal learning only, the coefficient is lower when using the restricted sample than when using the EU27 sample, and the opposite it is true for formal learning.

An implication could be that the positive ranking concordance for non-formal learning is driven more from countries not participating in PIAAC; and the positive ranking concordance for formal learning is driven by PIAAC participating countries.

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8 Croatia did not participate in AES.

9 To give an insight of the meaning of the magnitude of the Kendall tau coefficient, let us assume that there are a total of 100 pairs. A coefficient equal to 0.5 means that out of these 100 pairs, 84 are “concordant” and only 16 pairs are “discordant”.

10 As a further check we used an alternative measure of rank correlation: the Spearman’s rank correlation coefficient. This coefficient is a statistical measure of the strength of a monotonic relationship between paired data. It varies between -1 and 1, with values close to -1 or +1 when each of the variables is a perfect monotone function of the other. The results obtained using this alternative method provide similar conclusions.

Table 1: Kendal tau rank correlation coefficients

EU countries in PIAAC				EU 27	
<b>Formal and non-formal learning</b>					
	LFS	AES	PIAAC	LFS	LFS
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.450*	1		AES	0.532*
<b>PIAAC</b>	0.750*	0.421*	1		
<b>Non-formal learning</b>					
	LFS	AES	PIAAC	LFS	LFS
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.426*	1		AES	0.517*
<b>PIAAC</b>	0.676*	0.367*	1		
<b>Formal learning</b>					
	LFS	AES	PIAAC	LFS	LFS
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.553*	1		AES	0.506*
<b>PIAAC</b>	0.500*	0.435*	1		

NOTE: in the table we report the Kendal tau correlation coefficient among the different data sources.

(\*) means statistically significant at 5% level

## 2.2 Variation by sub-groups

In this section we replicate the analysis focusing on particular sub-groups of the population. In particular we analyse differences by labour market status and by age-group.<sup>11</sup>

- **Age groups**

We divide the sample into 4 age groups: 25-34; 35-44; 45-54; 55-65. In Table A.4 we report the proportion of individuals participating into formal and/or non-formal education by age group according to the three surveys. A common pattern among countries is that participation into formal education decreases by age group (i.e. participation into formal education is higher among the young).<sup>12</sup> No specific pattern emerges for the participation into non-formal education, it is only worth mentioning that, as expected, the oldest age group (55-65) shows systematically lower level of participation in non-formal education.

We replicate the Kendal correlation of the ranking by sub-groups (Table 2). Focusing on the rank correlation between AES and LFS (the right hand side of the Table) we see that there are no differences when stratifying by age: in all the 4 age-groups we find a Kendal coefficient close to 0.5, and always significant, meaning that the two surveys rank countries quite similarly across the four age-groups considered and the three different definition of learning.

If we include PIAAC in the analysis (left hand side of Table 2) we notice that, if we focus on formal education only, there are non-substantial differences between the three sub-groups: the Kendal correlation is quite high in all the three age groups considered (information is not available for the last group) among all the three surveys. However, if we focus on non-formal education only, a different picture emerges. The three oldest age groups (between 35 and 65) show a similar pattern: significant correlation -although not very high- among all the three surveys. On the other side, the group of young individuals (25-34) behaves differently: the only significant correlation found is between PIAAC and LFS, with all the remaining correlations small and non-significant.

In addition, there are some differences in the Kendal coefficients estimated between LFS and AES when using the EU27 countries or the European countries in PIAAC. In particular, as before, when considering participation to non-formal learning only, the coefficient is lower when using the restricted sample than when using the EU27 sample, and the opposite it is true for formal learning. With the extreme case of the correlation of the ranking between AES and LFS not being significant in the youngest age group when using the restricted sample of countries.

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<sup>11</sup> The breakdowns considered are all reliable in term of sample size.

<sup>12</sup> It is not possible to measure the participation rate in formal education using LFS for the oldest age-group: this information was available only for the age group 55-74. Focusing on this age group we noticed that participation into formal education is close to 0 in all the countries. Thus we rely on the participation into both formal and non-formal (available for the correct age-group) and assume it is participation into non-formal only, since we can safely assumed that the proportion of individuals aged 55-64 participation into formal education is close to zero.

Even in this case we find a confirmation of the fact that, when focusing on the EU27 countries, **AES and LFS rank countries similarly**, and the differences emerging including PIAAC are not due to differences in the coverage period (4 weeks rather than 12months) but probably it is

more a **matter of definition of the category or phrasing of the question, having a higher impact in particular on the younger age group**. In addition, **some differences emerge between LFS and AES when using the EU27 or only the European countries participating in PIAAC**

Table 2: Kendal tau rank correlation coefficients by age group

25-34					
Formal and non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.456*	1		AES	0.499*
<b>PIAAC</b>	0.721*	0.471*	1		
Formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.676*	1		AES	0.573*
<b>PIAAC</b>	0.574*	0.485*	1		
Non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.324	1		AES	0.452*
<b>PIAAC</b>	0.574*	0.309	1		
35-44					
Formal and non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.368*	1		AES	0.459*
<b>PIAAC</b>	0.824*	0.397*	1		
Formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.638*	1		AES	0.515*
<b>PIAAC</b>	0.524*	0.505*	1		
Non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.426*	1		AES	0.495*
<b>PIAAC</b>	0.676*	0.456*	1		

45-54					
Formal and non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.397*	1		AES	0.495*
<b>PIAAC</b>	0.750*	0.529*	1		
Formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.697*	1		AES	0.515*
<b>PIAAC</b>	0.667*	0.667*	1		
Non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.426*	1		AES	0.502*
<b>PIAAC</b>	0.721*	0.500*	1		
55-65					
Formal and non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.471*	1		AES	0.527*
<b>PIAAC</b>	0.603*	0.426*	1		
Non-formal learning					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			LFS	1
<b>AES</b>	0.456*	1		AES	0.507*
<b>PIAAC</b>	0.588*	0.426*	1		

Note: (\*) means statistically significant at 5% level

- **Labour market status**

We divided the sample into employed, unemployed and inactive individuals and we assess whether participation into lifelong learning varies between the three groups.

In Table A.5 we report the proportion of individuals participating in formal and/or non-formal education by labour market status and according to the three surveys. As expected, inactive individuals have the lower participation share in both formal and/or non-formal education in all the three surveys. In addition unemployed individuals systematically report lower share of formal and/or non-formal education than employed.

We then replicate the Kendal correlation of the ranking by sub-groups (Table 3). Focusing on the rank correlation between AES and LFS (right hand side of the Table) we see that when stratifying by labour status, in the inactive and employed groups the Kendal coefficients are positive and significant for formal and/or non-formal learning. They are a bit lower in the employed group (around 0.4) and slightly higher in the inactive group (0.6 – 0.7). On the other side, in the unemployed group the coefficient is positive and significant for the non-formal learning, while not significant for the formal learning.

If we include also PIAAC (left hand side of the table) we notice that if we focus on formal education only, there are non-substantial differences between the three sub-groups: the Kendal correlation is quite high in all groups among all the three surveys, an exception being the lack of significant correlation between PIAAC and LFS in the group of unemployed. However if we focus on non-formal education a

different picture emerges. The groups of unemployed and inactive show a similar pattern: significant correlation -although not very high- among all the three surveys. On the other side, the group of employed individuals behave differently: the only significant correlation found is between PIAAC and LFS, with all the remaining correlations small and non-significant.

When comparing the correlation between AES and LFS using the two samples of countries, we notice that a big difference emerge in non-formal learning in the employed group. While the two rankings are positively and significantly related when using the 27 countries, they are not significant when using the PIAAC countries' sample. These findings not only confirm what we hypothesized in the previous section. First, the rank correlation among LFS and AES, when considering the EU27 sample, is positive and significant, a part from the formal learning in the unemployed group; second, there exist differences between AES and LFS in the coefficients when restricting the sample to the PIAAC participating countries, underlying that including or not some countries can make the difference; third, differences emerging among the three surveys when using the restricted sample of countries seem not to be due to difference in coverage periods (4 weeks rather than 12months) but might be addressed to different **definition and phrasing of the question**. Besides, these results provide an additional piece of information: **differences emerge in the group of employed only, this potentially indicating that the issue may be related to different perception of the “on the job training”**.

Table 3 Kendal tau rank correlation coefficients

<b>EMPLOYED</b>					
<b>Formal and non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.383*	1		0.440*	1
<b>PIAAC</b>	0.750*	0.333	1		
<b>Formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.588*	1		0.452*	1
<b>PIAAC</b>	0.655*	0.867*	1		
<b>Non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.3	1		0.423*	1
<b>PIAAC</b>	0.717*	0.367	1		
<b>INACTIVE</b>					
<b>Formal and non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.750*	1		0.772*	1
<b>PIAAC</b>	0.717*	0.767*	1		
<b>Formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.785*	1		0.761*	1
<b>PIAAC</b>	0.676*	0.746*	1		
<b>Non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.479*	1		0.515*	1
<b>PIAAC</b>	0.555*	0.581*	1		
<b>UNEMPLOYED</b>					
<b>Formal and non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.633*	1		0.693*	1
<b>PIAAC</b>	0.767*	0.533*	1		
<b>Formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.643*	1		0.4	1
<b>PIAAC</b>	0.571	0.786*	1		
<b>Non-formal learning</b>					
	LFS	AES	PIAAC	LFS	AES
<b>LFS</b>	1			1	
<b>AES</b>	0.517*	1		0.610*	1
<b>PIAAC</b>	0.574*	0.391*	1		

Note: (\*) means statistically significant at 5% level

### 2.3 Descriptive statistics from CVTS

As mentioned in section 2, the Continuing Vocational Training Survey (CVTS) cannot be compared to the other main labour force surveys, since the source of information is different: employers in the business sector and not individuals in the labour force. Thus, we can only draw mediated information on the rate of participants, and limited to course financed by the employer.

Table 4 shows the percentage of employees (in all enterprises) participating in CVT courses in European countries in 2010 (the latest available data). It shows that about half of the Member States are above the EU28 average, and this does not only include the typically best performing countries in economic terms. Second, it also shows that the rate of participation varies a lot according to the size of the firm: the bigger the company the higher the percentage of employees participating in some training activities. This latter point seems to be quite reasonable, since bigger firms have better resources and a different organizational culture that can result in a wider offer or even bottom-up planned periods of training for their own employees.

Table 5 provides some details about the category of “other activities”, which may be considered as a mix between non-formal and formal activities undertaken by the employees. Also here (see section 2) on-the-job training seems to be the most common activity among the category, followed on a distance by the participation to seminar or workshops and by a category that might be associated to informal learning, as self-learning.



Table 4 Percentage of employees participating in CVT courses, by size class (year 2010)

	firm size			
	total	10-49	50-249	>250
<b>European Union (28 countries)</b>	38	25	34	46
<b>Czech Republic</b>	61	46	60	70
<b>Belgium</b>	52	34	51	61
<b>Luxembourg</b>	51	34	44	69
<b>Spain</b>	48	35	45	61
<b>Sweden</b>	47	40	48	53
<b>France</b>	45	27	42	56
<b>Slovakia</b>	44	28	44	54
<b>Slovenia</b>	43	24	36	60
<b>Finland</b>	40	32	32	48
<b>Portugal</b>	40	27	42	52
<b>Germany</b>	39	28	35	44
<b>Netherlands</b>	39	29	35	45
<b>Cyprus</b>	37	24	31	61
<b>Denmark</b>	37	36	40	37
<b>Italy</b>	36	21	32	54
<b>Malta</b>	36	15	33	60
<b>Austria</b>	33	26	33	38
<b>Estonia</b>	31	22	31	41
<b>Poland</b>	31	9	21	48
<b>United Kingdom</b>	31	25	28	33
<b>Latvia</b>	24	14	22	39
<b>Croatia</b>	23	19	19	27
<b>Bulgaria</b>	22	8	16	44
<b>Hungary</b>	19	11	15	28
<b>Lithuania</b>	19	11	17	28
<b>Romania</b>	18	6	11	28
<b>Greece</b>	16	7	11	31
<b>Ireland</b>	:	:	:	:

**Table 5 Participants in other form of CVT as a percentage of employees in all enterprises by type of training (year 2010)**

	Continuing vocational training in work situation	Job rotation, exchanges or secondments	Learning/quality circles	Self-learning	Continued training at conferences, workshops, lectures and seminars
<b>European Union (28 countries)</b>	20	2	3	8	8
Belgium	21	2	3	7	7
Bulgaria	20	1	8	3	6
Czech Republic	31	1	3	6	11
Denmark	16	4	3	11	20
Germany	28	2	4	11	15
Estonia	14	3	2	7	8
Greece	6	1	4	2	2
Spain	20	2	3	9	5
France	14	2	1	4	2
Croatia	15	1	3	5	8
Italy	11	3	1	9	5
Cyprus	18	2	9	3	17
Latvia	21	2	2	2	4
Lithuania	25	0	6	7	19
Luxembourg	20	3	5	8	14
Hungary	12	1	2	8	5
Malta	15	3	4	3	8
Netherlands	14	2	4	9	9
Austria	12	3	10	6	14
Poland	11	1	0	3	5
Portugal	20	2	5	6	5
Romania	10	2	1	5	3
Slovenia	25	1	7	6	31
Slovakia	21	2	10	7	10
Finland	12	2	9	12	5
Sweden	24	9	1	4	19
United Kingdom	30	4	3	9	8

### 3. Concluding remarks

From the analyses proposed above we can draw the following concluding remarks.

Despite of the differences in the absolute values from the different surveys considered (AES, LFS, PIAAC), we can nonetheless notice that there are some common trends, in particular in the way the different surveys rank countries:

Despite the different coverage period AES and LFS rank the 27 European countries in a quite similar way, across different definition of learning (formal and/or informal) and across stratification in different sub-groups (age and labour status).

Therefore if the interest lies in simply ranking the countries, using one or the other measure does not change dramatically the results.

When we introduce the comparison with PIAAC, thus focusing on the sample of countries participating in PIAAC (17 countries),

1. most of the differences among the 3 surveys lay in the dimension of non-formal learning. Even when we analyse sub-groups (age and LM status) we find that most of the differences are in non-formal education:
  - non-formal learning does not show a clear pattern for age: while all the three surveys measure the same trend for individuals aged 35-65, for the younger group (25-34) there only a small correlation can be found between LFS and PIAAC;
  - non-formal learning for labour market status shows that, while unemployed and inactive people share the same pattern (with low levels of participation and significant correlation among the three surveys), the only significant correlation for employed individuals is found –again– between PIAAC and LFS.
2. LFS and PIAAC are the surveys with the highest correlation (higher than between LFS and AES), both when considering aggregate data and when considering subgroups. And this holds true despite the fact that:
  - PIAAC and LFS have a different coverage period (12-months the former, 4-weeks the latter);
  - LFS does not include on the job training (which in turn is included in PIAAC).

## Annex

Table A.1

	PIAAC	LFS	AES
<b>Reference period</b>	12 months	4 weeks	12 months
<b>FORMAL EDUCATION</b>			
<b>Question</b>	<p><b>B_Q02a:</b> “Are you currently studying for any kind of formal qualification?”</p> <p><b>B_Q04a:</b> “During the last 12 months, that is since ^MonthYear, have you studied for any formal qualification, either full-time or part-time?” How many?</p> <p><b>B_D01d</b> and <b>B_D03d</b> for drop outs within the 12 months preceding the survey</p>	<p><b>EDUCSTAT:</b> Student or apprentice in regular education during the last 4 weeks (from 2003 onwards). <i>[online code: trng_fed]</i></p>	<p><b>FED:</b> “During the last 12 months, that is since &lt;&lt;month, year&gt;&gt; have you been a student or apprentice in formal education?”</p>
<b>Additional information</b>	Level, the area of studies, the reasons for attending the qualification (mainly job related or not), and whether they were employed at the same time.	Information on the level and the field.	Number of formal education activities, the name, the level, the field, the orientation, the method of learning, the reasons for participation, whether activities were held during working hours, who paid and satisfaction.
<b>NON - FORMAL LEARNING</b>			
<b>Question</b>	<p><b>B_Q12a: Course conducted through open distance education.</b> This covers courses which are similar to face-to-face courses, but take place via postal correspondence or electronic media, linking instructors/teachers/tutors or students who are not together in a classroom.</p> <p><b>B_Q12c: On the job training or training by supervisors or co-workers.</b> This type of training is characterized by planned periods of training, instruction or practical experience, using normal tools of work. It is usually organized by the employer to facilitate adaptation of (new) staff. It may include general training about the company as well as specific job-related instructions (safety and health</p>	<p><b>COURATT :</b> Did you attend any courses, seminars, conferences or received private lessons or instructions outside the regular education system (hereafter mentioned as taught learning activities) within the last 4 weeks. <i>[online code: trng_nfe]</i></p>	<p><b>NFE:</b> “During the last 12 months have you participated in any of the following activities with the intention to improve your knowledge or skills in any area (including hobbies)? This includes completed and ongoing activities In particular the survey mentions:</p> <p>a. <b>Courses at the workplace or in your free time?</b> (NFE COURSE) Examples: language courses, computer courses, driving courses, management courses, cooking courses, gardening courses or painting courses.</p> <p>b. <b>Workshops or seminars</b> at the workplace or in your free time? (NFE WORKSHOP) Examples: Data workshop, inspiration day, study day, inspirational workshop, work information seminar, health seminar</p> <p>c. <b>Planned periods of education,</b></p>

	<p>hazards, working practices). It includes for instance organized training or instructions by management, supervisors or coworkers to help the respondent to do his/her job better or to introduce him/her to new tasks, but can also take place in the presence of a tutor.</p> <p><b>B_Q12e: Seminar or workshop.</b></p> <p><b>B_Q12g: Courses or private lessons</b> not already reported.</p>		<p><b>instruction or training directly at the workplace, organised by the employer with the aid of an instructor?</b> (NFEGUIDEDJT) Examples: Training to operate a new machine or to learn new software (for one or two persons)</p> <p><b>d. Private lessons with the aid of a teacher or tutor for whom this is a paid activity?</b> (NFELESSON) Examples: mathematics or piano lessons. A lesson should be included if provided by a professional teacher and excluded if provided by a friend, family member or colleague.</p>
<b>Additional information</b>	<p>For each of these possible course respondents are asked how many did they attend and whether the attendance was job related. Finally, a last question could be used to estimate the total <b>intensity</b> of adult lifelong learning: "Now let's look at the total amount of time you have spent in the past 12 months on all types of courses, training, private lessons, seminars or workshops</p>	<p>Information on number of hours, purpose, field, and if attended during work hours</p>	<p>Information on number of activities, whether they were held during working hours and who paid for them.</p> <p>For three randomly selected activities information are provided also on: main reason, field, method, during working hours, volume (number of hours, number weeks), providers, whether the activity lead to certificate, satisfaction, reasons for satisfaction.</p>
<b>INFORMAL LEARNING</b>			
<b>Question</b>			<p><b>INF:</b> Other than the activities discussed earlier, have you deliberately tried since the last 12 months to learn anything at work or during your free time to improve your knowledge or skills?</p> <p>In addition respondents provide information on field, purpose and method used in the learning activities</p>

Table A.2 Proportion of adult population attending formal and non-formal education

Country	LFS - 2011			AES-2011			PIAAC-2011		
	Formal + Non-formal	Formal	Non-formal	Formal + Non-formal	Formal	Non-formal	Formal + Non-formal	Formal	Non-formal
Austria	13.4	3.8	10.3	48.2	5.9	45.5	47.8	6.3	45.5
Belgium	7.1	2.4	4.8	37.7	7.4	33.1	48.3	7.8	45.5
Bulgaria	1.3	1.2	0.2	26.0	2.4	24.4			
Croatia	2.3	2.0	0.4						
Cyprus	7.5	2.0	5.7	42.3	3.7	40.9	37.8	5.9	36.6
Czech Republic	11.4	2.2	9.5	37.1	3.7	34.9	51.5	11.8	52.7
Denmark	32.3	6.1	27.9	58.5	12.6	52.7	65.6	14.1	61.0
Estonia	11.9	4.7	7.8	49.9	6.6	48.0	52.1	9.2	49.9
Finland	23.8	8.6	16.7	55.7	12.0	51.3	65.4	15.1	61.0
France	5.5	0.7	4.9	50.5	3.5	49.1	36.8	7.4	35.3
Germany	7.8	3.0	5.1	50.2	3.8	48.5	52.4	6.6	49.7
Greece	2.4	1.5	1.0	11.7	2.6	9.6			
Hungary	2.7	1.8	1.0	41.1	6.5	37.6			
Ireland	6.8	4.0	3.0	24.4	6.7	18.7	50.8	15.5	45.2
Italy	5.7	2.6	3.2	35.6	2.9	34.3	27.5	11.4	27.3
Latvia	5.1	2.1	3.1	32.3	4.3	30.0			
Lithuania	5.7	2.1	3.7	28.5	4.0	25.9			
Luxembourg	13.6	2.6	11.4	70.1	9.9	68.0			
Malta	6.4	2.1	4.8	35.9	4.4	34.2			
Netherlands	16.7	7.1	9.6	59.3	12.3	54.8	63.9	14.3	59.9
Poland	4.4	2.8	1.8	24.2	5.4	21.0	35.0	7.6	32.0
Portugal	11.0	5.8	5.9	44.4	10.4	39.6			
Romania	1.6	1.1	0.5	8.0	1.4	6.9			
Slovakia	3.9	1.8	2.1	41.6	5.8	38.3	32.9	5.8	30.7
Slovenia	15.9	7.1	9.8	36.2	2.3	34.7			
Spain	11.0	2.9	8.3	37.7	7.0	34.1	46.0	12.5	41.8
Sweden	24.9	6.5	20.2	71.8	13.5	67.0	64.9	12.7	60.5
United Kingdom	15.8	5.3	13.4	35.8	14.8	24.3	55.7	15.5	50.8

NOTE: In the table we report the proportion of adult population, aged 25-64, participating in formal, non-formal education according to the different data sources

**Table A.3 Ranking of the countries according to the different kind of lifelong learning**

Country	LFS			AES			PIAAC		
	Formal + non-formal	Formal	Non-formal	Formal + non-formal	Formal	Non-formal	Formal + non-formal	Formal	Non-formal
Denmark	1	5	1	4	3	4	1	5	2
Sweden	2	4	2	1	2	2	3	6	3
Finland	3	1	3	5	5	5	2	3	1
Netherlands	4	3	8	3	4	3	4	4	4
Slovenia	5	2	7	17	26	15			
United Kingdom	6	7	4	19	1	23	5	2	6
Luxembourg	7	14	5	2	7	1			
Austria	8	10	6	9	13	9	11	15	10
Estonia	9	8	11	8	11	8	7	10	7
Czech Republic	10	17	9	16	21	14	8	8	5
Portugal	11	6	12	10	6	11			
Spain	12	12	10	15	9	18	12	7	12
Germany	13	11	14	7	19	7	6	14	8
Cyprus	14	21	13	11	20	10	13	16	13
Belgium	15	16	17	14	8	19	10	11	9
Ireland	16	9	21	24	10	25	9	1	11
Malta	17	19	16	18	16	17			
Lithuania	18	20	18	22	18	21			
Italy	19	15	19	20	23	16	17	9	17
France	20	28	15	6	22	6	14	13	14
Latvia	21	18	20	21	17	20			
Poland	22	13	23	25	15	24	15	12	15
Slovakia	23	23	22	12	14	12	16	17	16
Hungary	24	24	25	13	12	13			
Greece	25	25	24	26	24	26			
Croatia	26	22	27	28	28	28			
Romania	27	27	26	27	27	27			
Bulgaria	28	26	28	23	25	22			

NOTE: In the table we report the ranking of the countries, from the higher to the lower participation, according to the different data sources

Table A.4: Proportion of individuals participating in lifelong learning by age-group

	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Austria</b>									
From 25 to 34 years	22.5	55.4	62.2	11.9	13.1	19.2	12.5	49.3	54.6
From 35 to 44 years	13.5	51.3	54.9	2.4	5.6	5.0	11.6	48.1	53.2
From 45 to 54 years	10.9	48.8	50.3	0.9	3.2	1.6	10.2	47.7	49.9
From 55 to 64 years	6.5	35.7	21.4		1.9	0.5		35.2	21.3
<b>Belgium</b>									
From 25 to 34 years	10.3	49.5	60.7	5.0	12.9	15.4	5.7	41.3	54.3
From 35 to 44 years	7.9	44.0	55.3	2.4	7.5	8.1	5.7	39.6	52.7
From 45 to 54 years	6.1	37.4	50.0	1.4	6.0	5.3	4.8	33.6	48.8
From 55 to 64 years	3.9	19.9	30.9		3.6	4.3		17.6	29.4
<b>Bulgaria</b>									
From 25 to 34 years	4.4	31.0		4.3	7.4			25.8	
From 35 to 44 years	0.6	30.1		0.5				29.4	
From 45 to 54 years		28.2						27.8	
From 55 to 64 years		15.1						15.0	
<b>Croatia</b>									
From 25 to 34 years	9.9			9.3			0.7		
From 35 to 44 years	1.3			0.8			0.6		
From 45 to 54 years	0.5			0.3			0.3		
From 55 to 64 years									
<b>Cyprus</b>									
From 25 to 34 years	12.3	50.2	50.6	5.1	9.1	15.0	7.5	46.3	47.7
From 35 to 44 years	6.7	46.8	44.2	1.0		4.3	5.8	46.1	43.3
From 45 to 54 years	5.2	40.1	34.6	0.6		1.4	4.7	39.8	34.4
From 55 to 64 years	4.0	27.8	18.7			1.8		27.7	18.1
<b>Czech Republic</b>									
From 25 to 34 years	16.8	44.2	64.1	6.1	9.2	27.8	11.6	38.8	67.8
From 35 to 44 years	13.0	42.9	56.7	1.7	3.4	7.9	11.6	41.0	55.9
From 45 to 54 years	10.0	39.3	57.9	0.6		7.6	9.5	38.7	59.2
From 55 to 64 years	5.1	20.4	28.2			3.3		20.1	29.0
<b>Denmark</b>									
From 25 to 34 years	44.4	68.4	78.5	18.3	30.6	32.2	31.3	52.2	67.1
From 35 to 44 years	32.3	63.1	72.0	4.8	10.9	13.5	28.6	58.2	67.6
From 45 to 54 years	29.6	57.8	66.1	2.3	8.4	10.6	28.0	55.2	63.7
From 55 to 64 years	24.0	45.5	48.1		3.1	3.3		44.7	46.7
<b>Estonia</b>									
From 25 to 34 years	19.7	64.5	65.8	12.6	18.1	23.0	8.7	59.2	60.2
From 35 to 44 years	13.8	51.6	58.5	4.5	5.2	8.8	10.2	50.9	56.7
From 45 to 54 years	8.4	48.1	50.5	1.0		2.9	7.5	47.0	49.6
From 55 to 64 years	4.7	32.6	33.1			1.2		32.6	32.8
<b>Finland</b>									
From 25 to 34 years	34.9	65.8	78.1	21.1	26.9	33.0	16.6	54.8	66.8
From 35 to 44 years	26.1	64.8	77.7	8.7	12.5	17.5	19.2	61.2	73.2
From 45 to 54 years	22.2	59.0	67.3	4.9	7.5	11.4	18.6	56.3	64.6
From 55 to 64 years	13.5	35.5	45.1		2.4	2.6		34.7	44.5
<b>France</b>									
From 25 to 34 years	9.3	61.1	46.0	3.0	8.8	13.1	6.5	57.5	41.1
From 35 to 44 years	6.1	57.7	43.7		3.2	8.4	6.0	56.5	42.3
From 45 to 54 years	4.6	50.4	39.9		2.0	6.2	4.6	49.6	39.5
From 55 to 64 years	2.3	32.8	19.4		0.5	2.6		32.7	19.7



	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Germany</b>									
From 25 to 34 years	17.7	57.4	63.0	12.0	13.2	22.0	6.7	51.4	53.2
From 35 to 44 years	6.8	52.4	57.8	1.1	2.2	5.0	5.9	51.7	56.3
From 45 to 54 years	5.3	51.9	54.2	0.3		1.9	5.0	51.4	53.5
From 55 to 64 years	2.9	38.6	34.7			0.4		38.1	34.6
<b>Greece</b>									
From 25 to 34 years	6.2	20.3		5.0	8.1		1.4	13.7	
From 35 to 44 years	2.0	13.4		0.6	1.5		1.3	12.3	
From 45 to 54 years	1.0	9.0		0.2			0.9	8.2	
From 55 to 64 years	0.4	3.1						3.1	
<b>Hungary</b>									
From 25 to 34 years	6.8	51.8		5.4	13.1		1.7	44.3	
From 35 to 44 years	2.3	47.3		1.2	7.5		1.1	43.3	
From 45 to 54 years	1.0	42.9		0.3	3.8		0.7	41.1	
From 55 to 64 years	0.5	21.7			0.9			21.2	
<b>Ireland</b>									
From 25 to 34 years	10.2	29.2	59.5	7.4	11.2	23.4	3.2	19.4	50.5
From 35 to 44 years	6.7	26.7	53.2	3.4	6.4	16.9	3.5	21.4	47.2
From 45 to 54 years	5.4	22.2	48.6	2.5	4.8	9.9	3.0	18.3	45.0
From 55 to 64 years	3.2	16.4	36.8		2.3	8.1		14.3	34.6
<b>Italy</b>									
From 25 to 34 years	12.4	43.0	41.8	9.3	9.7	25.5	3.5	38.2	37.6
From 35 to 44 years	4.7	39.5	31.1	1.2	1.8	13.2	3.6	38.8	32.8
From 45 to 54 years	3.8	36.4	24.7	0.5	0.8	3.9	3.4	36.1	24.2
From 55 to 64 years	2.4	22.3	13.0			4.0		22.3	14.6
<b>Latvia</b>									
From 25 to 34 years	9.3	38.0		5.7	8.9		4.0	33.1	
From 35 to 44 years	5.3	37.6		2.0	4.7		3.7	35.0	
From 45 to 54 years	3.3	31.7		0.7	2.3		2.7	30.9	
From 55 to 64 years	2.3	19.7						19.1	
<b>Lithuania</b>									
From 25 to 34 years	11.8	37.3		6.8	11.9		5.5	29.0	
From 35 to 44 years	5.3	30.6		1.6	3.2		3.9	28.7	
From 45 to 54 years	3.7	28.0					3.5	28.0	
From 55 to 64 years	2.1	16.2						16.1	
<b>Luxembourg</b>									
From 25 to 34 years	22.5	81.4		7.8	17.8		15.9	75.7	
From 35 to 44 years	13.9	72.6		1.5	8.6		12.7	71.5	
From 45 to 54 years	10.4	72.1		0.8	7.2		9.8	71.4	
From 55 to 64 years	6.0	49.4			5.7			48.5	
<b>Malta</b>									
From 25 to 34 years	9.7	43.7		5.1	8.1		5.6	40.9	
From 35 to 44 years	8.3	46.8		2.1	6.6		6.8	44.0	
From 45 to 54 years	4.8	35.1		1.0			4.1	33.9	
From 55 to 64 years	3.0	20.1						19.7	
<b>Netherlands</b>									
From 25 to 34 years	27.5	72.4	78.1	16.3	21.4	25.9	11.4	62.8	69.0
From 35 to 44 years	17.5	65.1	68.4	6.5	13.0	15.7	11.1	61.5	63.4
From 45 to 54 years	14.6	58.7	66.1	4.7	9.9	11.2	9.9	56.4	63.7
From 55 to 64 years	8.4	38.2	44.9		4.5	6.2		35.7	44.7
<b>Poland</b>									
From 25 to 34 years	9.8	36.0	50.4	7.6	12.7	16.4	2.6	28.1	42.9
From 35 to 44 years	4.1	28.7	41.1	2.2	5.1	7.7	2.1	25.7	38.4
From 45 to 54 years	2.2	20.4	31.3	0.7	1.9	3.5	1.6	19.5	30.6
From 55 to 64 years	0.8	9.6	15.5			1.3		9.4	15.3

	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Portugal</b>									
From 25 to 34 years	17.8	59.9		11.1	17.4		8.2	53.2	
From 35 to 44 years	12.1	51.9		6.2	12.6		6.6	46.2	
From 45 to 54 years	8.3	41.0		3.8	7.8		5.0	36.7	
From 55 to 64 years	4.7	21.9			3.0			20.0	
<b>Romania</b>									
From 25 to 34 years	4.1	13.1		3.4	3.4		0.6	10.1	
From 35 to 44 years	1.0	8.8		0.4	1.1		0.5	8.1	
From 45 to 54 years	0.5	6.5					0.4	6.1	
From 55 to 64 years		2.0						1.9	
<b>Slovakia</b>									
From 25 to 34 years	7.0	49.4	38.7	4.8	12.0	10.2	2.4	42.7	33.7
From 35 to 44 years	3.6	47.6	38.5	1.2	6.0	7.1	2.5	44.0	36.2
From 45 to 54 years	2.7	43.8	36.3	0.4	3.0	3.7	2.3	42.1	35.5
From 55 to 64 years	1.3	21.9	17.4			1.5		21.6	17.0
<b>Slovenia</b>									
From 25 to 34 years	29.1	43.3		20.3	7.2		11.6	38.6	
From 35 to 44 years	16.8	40.3		6.5	1.4		11.3	39.6	
From 45 to 54 years	10.7	38.6		1.5	0.4		9.5	38.5	
From 55 to 64 years	6.8	22.8						22.7	
<b>Spain</b>									
From 25 to 34 years	18.1	47.8	58.5	7.6	14.3	25.6	11.3	40.5	50.2
From 35 to 44 years	10.9	39.7	51.6	2.1	6.2	12.1	9.1	36.6	48.0
From 45 to 54 years	8.0	36.1	45.5	1.0	4.1	8.6	7.1	34.0	42.7
From 55 to 64 years	5.0	23.2	26.2		2.1	3.5		22.0	24.3
<b>Sweden</b>									
From 25 to 34 years	34.0	78.7	76.8	15.4	28.3	29.6	22.7	67.0	66.2
From 35 to 44 years	25.5	77.8	68.0	6.5	13.9	12.2	20.8	72.9	63.5
From 45 to 54 years	23.0	72.6	68.1	3.5	8.4	8.7	20.5	70.3	65.6
From 55 to 64 years	17.4	57.5	48.7		3.4	2.4		57.1	47.9
<b>United Kingdom</b>									
From 25 to 34 years	20.1	42.6	61.0	9.7	22.6	22.1	15.8	23.9	53.3
From 35 to 44 years	17.4	37.3	62.3	6.0	16.4	18.4	15.0	24.8	56.5
From 45 to 54 years	15.0	35.6	58.2	3.6	13.1	14.5	13.5	25.9	53.8
From 55 to 64 years	9.6	26.5	39.9		6.1	6.3		22.3	38.4

Table A.5: Proportion of individuals participating in lifelong learning by labor status

	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Austria</b>									
Employed	14.1	54.2	55.5	3.5	5.1	6.2	11.3	51.9	53.8
Inactive	10.1	30.0	19.9	4.7	8.3	6.2	6.0	26.4	15.7
Unemployed	18.6	42.5	50.6	4.8		8.4	14.5	38.3	46.1
<b>Belgium</b>									
Employed	7.4	46.2	55.8	1.8	7.3	7.9	5.8	42.2	53.6
Inactive	6.0	16.6	20.3	3.9	7.9	6.6	2.3	10.6	17.1
Unemployed	8.9	26.6	53.6	4.3	6.9	20.5	4.8	21.0	38.7
<b>Bulgaria</b>									
Employed	0.8	38.4		0.7	2.2		0.2	37.3	
Inactive	2.6	4.7		2.6	3.8				
Unemployed		5.3						3.8	
<b>Croatia</b>									
Employed	1.8			1.3			0.5		
Inactive	3.4			3.3					
Unemployed	1.9			1.6					
<b>Cyprus</b>									
Employed	8.0	50.6	45.7	1.7	3.9	6.4	6.5	49.2	44.7
Inactive	5.8	14.8	14.2	3.0		3.1	2.9	12.3	12.6
Unemployed	6.9	23.1	30.0	2.4		10.3	4.5	22.6	27.2
<b>Czech Republic</b>									
Employed	13.3	45.0	60.7	1.9	3.5	6.1	11.8	43.1	59.4
Inactive	5.4	13.3	12.3	3.6	4.0	3.6	2.2	10.3	9.8
Unemployed	7.5	25.5	31.9	1.2		2.2	6.5	22.8	30.7
<b>Denmark</b>									
Employed	32.8	63.4	73.2	4.8	9.7	13.5	29.6	59.7	69.5
Inactive	28.9	40.8	33.4	11.3	23.5	12.7	19.9	27.2	25.8
Unemployed	35.1	49.4	63.1	6.4	16.3	22.0	30.0	41.4	49.9
<b>Estonia</b>									
Employed	13.5	58.3	61.1	4.8	6.8	10.2	9.6	56.7	59.1
Inactive	6.7	20.9	16.0	5.5	7.2	5.2	1.4	17.5	13.1
Unemployed	8.6	34.8	35.5	3.3		7.0	5.7	32.8	32.4
<b>Finland</b>									
Employed	25.8	63.0	75.2	7.8	9.9	14.8	19.7	60.6	72.1
Inactive	17.1	37.7	30.1	10.9	21.8	14.0	6.8	26.1	22.4
Unemployed	19.7	31.9	59.4	10.4		27.6	10.2	28.1	45.9
<b>France</b>									
Employed	5.8	57.5	43.1	0.5	3.4	4.2	5.4	56.3	40.9
Inactive	4.7	22.7	14.4	1.5	3.5	4.7	3.3	21.1	11.2
Unemployed	5.2	38.8	28.6	0.4	5.8	10.8	4.8	35.7	21.2
<b>Germany</b>									
Employed	7.9	56.7	58.9	2.3	2.3	5.7	5.9	55.8	56.8
Inactive	8.1	31.6	24.4	6.6	9.9	9.6	2.0	26.7	19.3
Unemployed	5.1	28.4	41.5	1.7		12.4	3.6	26.8	35.8
<b>Greece</b>									
Employed	2.0	14.5		0.8	2.2		1.3	12.9	
Inactive	3.3	6.5		3.0	3.8		0.4	3.1	
Unemployed	2.7	10.0		1.9	2.4		1.0	7.9	
<b>Hungary</b>									
Employed	2.6	56.9		1.4	7.5		1.2	53.3	
Inactive	3.3	12.8		2.8	4.7		0.6	9.4	
Unemployed	2.0	20.5		1.1	5.4		1.0	16.7	

	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Ireland</b>									
Employed	6.2		61.5	2.8		14.6	3.6		57.8
Inactive	8.6		25.3	7.2		14.0	1.7		16.2
Unemployed	6.4		42.3	3.7		22.0	2.8		30.0
<b>Italy</b>									
Employed	5.4	46.5	32.4	1.4	2.2	5.4	4.1	45.6	30.1
Inactive	6.2	16.1	9.4	4.9	4.2	5.3	1.4	13.9	5.9
Unemployed	5.5	22.5	18.0	3.0	3.6	6.8	2.6	20.7	14.3
<b>Latvia</b>									
Employed	5.8	40.3		2.5	5.2		3.5	37.5	
Inactive	3.0	10.7		1.5	2.6		1.6	9.0	
Unemployed	4.3	19.8					3.5	19.1	
<b>Lithuania</b>									
Employed	6.7	37.9		2.1	4.4		4.8	35.4	
Inactive	3.3	8.0		2.5	4.0			4.4	
Unemployed	3.3	11.1						9.4	
<b>Luxembourg</b>									
Employed	14.9	79.2		1.5	10.2		13.7	77.5	
Inactive	9.3	39.0		6.0	8.3		4.1	35.5	
Unemployed	15.3	47.8					12.0	42.1	
<b>Malta</b>									
Employed	7.9	46.9		2.6	6.1		5.9	44.6	
Inactive	3.6	13.9		1.3			2.6	13.0	
Unemployed	10.0	30.9					7.7	30.0	
<b>Netherlands</b>									
Employed	18.3	69.7	72.8	7.3	12.8	14.9	11.1	66.0	68.9
Inactive	10.3	31.3	25.8	6.3	11.0	6.7	4.1	24.8	21.4
Unemployed	17.3	41.4	57.2	9.0		23.1	8.4	38.6	48.0
<b>Poland</b>									
Employed	5.1	32.6	45.9	2.9	6.4	8.8	2.4	29.1	42.9
Inactive	2.5	6.4	9.4	2.3	2.8	3.5	0.3	4.3	7.3
Unemployed	4.7	13.6	27.0	3.6	4.7	9.3	1.2	9.7	20.0
<b>Portugal</b>									
Employed	10.7	53.6		4.7	9.7		6.7	50.4	
Inactive	9.5	15.6		6.5	6.5		3.5	11.6	
Unemployed	15.6	37.4		12.0	18.3		5.0	25.0	
<b>Romania</b>									
Employed	1.3	10.5		0.7	1.4		0.6	9.4	
Inactive	2.3	2.0		2.1	1.5				
Unemployed	1.5	6.9						6.0	
<b>Slovakia</b>									
Employed	4.3	50.3	44.5	1.4	5.8	7.0	2.9	47.3	42.0
Inactive	3.4	11.6	7.0	3.3	5.8	2.8		7.0	5.2
Unemployed	1.7	17.8	11.9	1.0		2.5		14.0	9.9
<b>Slovenia</b>									
Employed	18.1	43.7		7.6	1.7		11.7	42.9	
Inactive	9.1	19.1		4.8	3.8		4.6	16.4	
Unemployed	16.4	27.2		9.6	2.3		7.9	25.5	
<b>Spain</b>									
Employed	10.8	43.8	55.4	2.4	6.9	13.4	8.7	40.5	52.0
Inactive	9.5	21.8	23.3	4.0	7.2	8.1	5.8	17.9	18.4
Unemployed	13.4	32.5	42.6	3.5	7.2	15.6	10.3	28.4	35.7

	FORMAL+ NON-FORMAL			FORMAL			NON-FORMAL		
	LFS	AES	PIACC	LFS	AES	PIACC	LFS	AES	PIACC
<b>Sweden</b>									
<b>Employed</b>	23.8	77.5	71.2	4.3	9.8	11.1	20.9	75.2	68.5
<b>Inactive</b>	26.0	47.5	34.2	17.2	30.1	16.9	12.2	30.9	24.6
<b>Unemployed</b>	41.0	52.8	54.7	15.4	21.9	28.7	29.9	43.4	36.0
<b>United Kingdom</b>									
<b>Employed</b>	17.4	41.4	65.4	5.1	16.1	17.0	15.3	29.0	60.8
<b>Inactive</b>	9.8	20.2	21.4	6.1	10.3	9.9	7.0	11.8	15.4
<b>Unemployed</b>	14.8	27.9	49.8	6.8	16.0	15.4	11.9	15.5	43.6

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European Commission

EUR 26918 EN – Joint Research Centre – Deputy Director-General Office, Econometrics and Applied Statistics

**Title: Adult Participation in Lifelong Learning**

Authors: Valentina Goglio, Elena Claudia Meroni

Luxembourg: Publications Office of the European Union

2014 – 31 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424

ISBN 978-92-79-44004-5

doi:10.2788/43117

#### **Abstract**

This technical briefing deals with adult participation in lifelong learning. In particular, it focuses on the implications associated to the use of different statistical sources (LFS, AES/CVTS and PIAAC), characterized by different reference periods and different definitions of lifelong learning.

The main objective of the technical briefing is to examine the impact of using a 12-month or 4-week reference period on access to and intensity of adult learning. But technical briefing also includes a review of the state of the art in the field of measurement of adult perception to lifelong learning, and some statistics about the variance according to different labour market status and age groups.

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