Steunpunt beleidsrelevant onderzoek 3de generatie Studie- en Schoolloopbanen

PATTERNS IN LIFE-LONG LEARNING PARTICIPATION

A descriptive analysis using the LFS, the AES and PIAAC

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Beleidssamenvatting

Levenslang leren is al geruime tijd een belangrijk element in het Vlaamse en Europese beleid (cf. Lissabon-strategie, Education & Training 2020, Pact 2020). Binnen Europa ligt daarbij, via de methode van open coördinatie (OMC), de klemtoon op het nastreven van bepaalde *benchmarks*, in het bijzonder het verhogen van de participatie aan levenslang leren (gedurende de voorafgaande maand) tot 15% van de bevolking. Vlaanderen heeft dit doel voorlopig nog niet bereikt: de participatiegraad stagneert al enige jaren rond de 7%.

In dit rapport bespraken we de resultaten van drie recente enquêtes waarin levenslang leren aan bod kwam (LFS/EAK, AES, PIAAC). Een consistente vaststelling uit alle drie de enquêtes was dat de participatie het hoogst lag in de Scandinavische landen (plus Nederland); Vlaanderen bevond zich doorgaans net onder de middenmoot[1]. Over het algemeen kwam de vastgestelde rangschikking behoorlijk goed overeen met de typologie van onderwijsregimes en welvaartsstaten die we eerder in deze onderzoekslijn hebben ontwikkeld (Lavrijsen, Nicaise, and Poesen-Vandeputte (2014)). Deze overeenstemming kan worden verklaard vanuit het idee dat individuele beslissingen over deelname aan levenslang leren altijd worden gemaakt binnen een sociale context die die deelname minder of meer aantrekkelijk maakt ('*bounded agency*': Rubenson en Desjardins (2009); Boeren, Nicaise & Baert (2010)). De architectuur van de welvaartstaat bepaalt immers mee in welke mate individuen mogelijke drempels om deel te nemen (zoals gezinsverantwoordelijkheden, een tekort aan steun van de werkgever, of kostprijs) kunnen overwinnen. Daarnaast speelt ook de kwaliteit van het initiële onderwijs een belangrijke rol, omdat goed ontwikkelde basisvaardigheden het fundament leggen voor een succesvolle latere deelname, en ook omdat het initiële onderwijs de houding t.o.v. leren (leerintentie, cf. Kyndt, Govaerts & Dochy (2014)) mee vorm geeft. In ons volgende rapport zullen we dit idee verder ontwikkelen door gebruik te maken van de AES-enquête, waarin de respondenten rapporteerden welke moeilijkheden ze ondervonden om deel te nemen aan levenslang leren.

Naast deze algemene vaststellingen gingen we dieper in op de kwaliteit en de vergelijkbaarheid van de drie enquêtes. Een aantal elementen suggereerde daarbij dat levenslang leren een behoorlijk ambigu concept is, waardoor deelnamecijfers steeds met de nodige omzichtigheid moeten worden geïnterpreteerd:

- De participatiegraden zoals die we vaststelden in de drie verschillende enquêtes kwamen gedeeltelijk met elkaar overeen, maar er waren ook belangrijke verschillen. Dit heeft wellicht te maken met verschillen in de definitie van de variabelen en met de manier waarop de vragen werden geformuleerd; daarnaast speelt ook de manier waarop de enquête werd afgenomen een rol.

[1] Merk op dat de resultaten uit een vroegere wave van de AES(2007), waarin Vlaanderen voor een specifieke vorm van LLL (formeel leren) een redelijk goede score haalde (Nicaise (2014)), niet werden bevestigd in de recente wave van de AES(2011): Vlaanderen scoorde hierin eerder matig voor zowel formeel als niet-formeel leren. Een verklaring voor de daling kan de verbeterde manier zijn waarop de enquête in 2011 werd afgenomen, waardoor de non-response (en de positieve zelfselectie) is gedaald.

- Het gemiddeld aantal uren dat een deelnemer aan een leeractiviteit spendeerde, varieerde sterk tussen de verschillende landen. In het bijzonder viel op dat Vlaamse deelnemers gemiddeld maar heel weinig uren aan hun leeractiviteiten besteedden. De internationale benchmarks, geformuleerd op basis van participatiegraden, houden geen rekening met dergelijke verschillen in intensiteit: elke deelnemer wordt gelijk geregistreerd, onafhankelijk van het aantal geïnvesteerde uren. Bij onze data-analyse merkten we ook op dat de enquêtes slechts onvolledige informatie bevatten over het aantal geïnvesteerde uren; hier zou bij het ontwerp van de enquêtes meer aandacht aan kunnen worden gegeven.

- Daarnaast analyseerden we aan welke soort opleidingen respondenten deelnamen. Ook hier stelden we verschillen tussen landen vast, waarbij opviel dat in Vlaanderen onder de noemer van het formeel leren relatief veel 'atypische' opleidingen werden gerapporteerd (taalcursussen, computerlessen, kunstonderwijs).

- De internationale definitie van LLL, zoals die ook in de benchmarks wordt gebruikt, verwijst naar alle leeractiviteiten door volwassenen tussen 25 en 65 jaar. Daarbij moet echter worden opgemerkt dat in sommige landen een aanzienlijk deel van de studenten in het hoger onderwijs hun studie pas beëindigt ná hun 25ste. Dat deze studenten mee worden geteld als 'levenslange' leerders vertekent de vergelijking tussen landen; in het bijzonder is ze nadelig voor Vlaanderen, waar studenten doorgaans net vrij vroeg afstuderen.

- Internationaal is er vrij veel aandacht voor een verhoging van de deelname aan levenslang leren onder laaggeschoolden (die over het algemeen veel minder vaak deelnemen dan hooggeschoolden). We stelden vast dat in landen met hoge deelnamecijfers in deze groep de laaggeschoolden voor een aanzienlijk deel bestonden uit recent gearriveerde immigranten, wat wellicht te maken heeft met (al dan niet verplichte) taal- en inburgeringscursussen.

- Kenmerken van het bedrijf en de sector waarin men is tewerkgesteld beïnvloedden de deelname aan LLL van werknemers vrij sterk; deze invloed was even sterk als die van de landspecifieke context.

Tot slot vermeldden we nog een meer fundamenteel bezwaar ten aanzien van de aanpak die het beleid aangaande levenslang leren beoordeelt op basis van een benchmarking van gebrekkige indicatoren (OMC). Een verhoging van de deelnamegraad aan levenslang leren is in feite slechts een middel om tot een meer productieve, innovatieve en sociale samenleving te komen, en geen doel op zich. De performantie van een land op dit gebied louter willen aflezen op basis van een deelnamegraad houdt echter geen rekening met de kwaliteit van de leeractiviteiten (cf. ook Sels (2002); in Vlaanderen werd dit bezwaar onlangs ook krachtig verwoord door Prof. Em. Roger Standaert (2014) in zijn boek over de meetcultus in het onderwijsbeleid). We deden daarom een korte aanvullende analyse naar de 'opbrengst' van levenslang leren door na te gaan of deelnamegraden gerelateerd waren aan de mate waarin oudere burgers vertrouwd zijn met nieuwe digitale technologieën. De resultaten lieten zien dat er inderdaad een zekere mate van overeenstemming bestond, maar dat dit zeker niet voor alle landen opging; in het bijzonder deden oudere Vlamingen het op dit vlak beter dan wat onze eerder lage deelnamegraad zou doen vermoeden. Dit suggereerde dus opnieuw enige voorzichtigheid bij het aflezen van de prestaties van een land m.b.t. levenslang leren op basis van participatiegraden alleen.

Chapter 1 Introduction

In Lavrijsen en Nicaise (2014), we showed how returns to education evolved with age. In particular, we observed a decrease with age in the returns to vocational education, which was presumably associated with a lower flexibility of (graduates from) vocational programmes to continuously update skills in a context of changing labour market demands. It is precisely this process of 'skill updating' that will be the main focus of the next two reports in this research line.

In the current report we will introduce the topic by considering data on participation in life-long learning across European and other Western countries. We will illustrate the main patterns in LLL participation in the different countries, using three recent surveys (LFS, AES, PIAAC). We will pay special attention to the effect of initial education on subsequent life-long learning and will present the theoretical background from the literature against which our findings can be interpreted. After these general observations, we will examine in more detail what the different survey data can learn us – and what they can't. Apparently (and often neglected in the literature), LLL still remains a somewhat ambiguous 'container' concept, and attention should be paid to country- or survey-specific issues when interpreting participation patterns.

Given the results from this report, we will examine in greater detail in the next report how participation patterns, in particular amongst disadvantaged groups, relate to the barriers reported by these groups to participate (more) in life-long learning.

Chapter 2 A brief introduction into lifelong learning

During the last decades, the need to increase participation in life-long learning (LLL) has been at the centre of the policy discourse. Strong impulses have come from the Lisbon-strategy (2000) and the subsequent Education & Training 2020 Strategic Framework (ET2020), which were aimed at making the EU '*the most competitive and dynamic knowledge-based economy in the world*'. The associated objectives (translated into the Pact 2020 in Flanders) put forward to increase the participation rate in LLL (during the preceding month) to 15% in 2020 (in Flanders, this rate fluctuates around 7%). The emphasis on LLL has been a strong driver behind a thorough review of existing - and the creation of new - adult education policies in Flanders (Bollens, Vanhoren & Baert (2004); Baert, Kusters, Scheeren, and Van Damme (2000)).

But what exactly *is* LLL? In its broadest sense, LLL involves all activities in which people learn at a certain moment in their life – no matter how old they are, no matter what their aim is, and no matter how this activity impacts on their life. However, such a broad definition entails a very large 'container' of possible learning activities, which may differ very much from each other. For example, all the following activities could be regarded as LLL:

- taking evening classes in order to get a qualification of secondary education;
- attending a one-hour-demonstration of a new software product you will use at your job;
- learning to play piano;
- going to a lecture about a topic that interests you personally;
- as a migrant, learning to speak the language of your country of destination.

Note that the objective of ET2020 referred to above does not differentiate between all these different instances of LLL, but only aims to increase the overall participation rate. (As we will see below, even in the scientific literature this differentiation of LLL participation across different activities has been rarely made.) This raises the question which activities are covered by LLL, which are dominant, and whether the concept is comparable across countries.

2.1 Sectors in the LLL landscape

In order to structure our overview of LLL, it helps to distinguish between four 'sectors' of LLL activities. As Van Damme (1996) notices, these sectors are more or less present in each European country, and they are often ruled by their own logics, with specific actors responsible for their government, often catering for specific target populations, and often originating from a specific historical background.

First, what we label as **'adult education'** refers to programmes, mostly governed by the educational policy department, aimed at acquiring a qualification recognised within the regular educational system. These programmes often combine occupation-specific schooling with a well-developed general core, and the qualifications acquired have a largely recognised civil effect. Examples include basic education and second-chance education.

The second sector consists of **job-related training**, which is specifically aimed at increasing the productivity of the working population. It is mostly offered on-the-job or through commercial training services.

Closely related to this is the third sector of (voluntary or compulsory) **(re-)training of unemployed individuals**, often through government agencies (e.g. VDAB). As unemployment increasingly has been related to skill deficiencies, re-training unemployed persons has been suggested to be the preferred pathway towards tackling large unemployment (cf. Nicaise en Bollens (1998)).

The fourth sector is that of **socio-cultural formation**, often accessed through local initiatives (subsidised by the state), and offering a relatively broad programme aimed at personal development, active citizenship and social cohesion.

In this report, we will always use 'LLL' as the broad concept referring to all types of LLL activities. 'Adult education' then refers to the first sector outlined above, while both the second and third sectors will be labelled as 'training'. 'Formation' refers to the last sector.

2.2 Benefits of LLL

In this report, we will pay relatively little attention to the benefits of LLL. The main reason is that it is very difficult to observe benefits of LLL in the three cross-sectional datasets that we will use (LFS, PIAAC, and the AES). In particular, any observed 'effect' of participation in LLL during a relatively small period prior to the survey on the current labour market position is severely biased, as LLL is not a random treatment: participants and non-participants are likely to differ already before their decision to participate in LLL (those with the strongest labour market position are the most likely to participate in LLL; moreover, the fact that most LLL activities take place at the workplace immediately infers a positive relationship between participation in LLL and employment). For example, Vansteenkiste, Verbruggen, Forrier, and Sels (2014) demonstrated that PIAAC is not very suitable to determine possible 'effects' of LLL on labour market outcomes.

While we will not engage in benefits estimations ourselves, here we will include a short description of effects of LLL recorded elsewhere (often on longitudinal data), in order to illustrate the rationale behind strategies aimed at increasing participation in LLL.

The clearest evidence relates to the benefits of **job-related training**. Training complements the human capital acquired in initial education for two reasons: first, because initial education becomes outdated after a while (Sels (2014): '*kwalificatieveroudering*'), and secondly, because it is often more efficient to learn something directly on the job (didactical advantage) (Van Damme (1996)). Training is then believed to have beneficial effects on the individual, firm and country level because it makes employees become more productive, more employable, and more innovative. In a recent overview study, Forrier (2009) indeed confirmed increased productivity, resulting in higher wages for the employee and a higher competitiveness for the firm and the country. Other reviews suggested a moderate but non-trivial effect of participation in LLL on individual labour market outcomes (e.g. Albert, Garcia-Serrano & Hernanz (2010); Blundell, Dearden & Meghir (1996); Blundell, Dearden & Meghir (1999); Blundell, Dearden, Meghir & Sianesi (1999)). For the Flemish Region, Knipprath en De Rick (2014) demonstrated on the SONAR-data that participation in LLL improves the labour market outcomes of low qualified young adults. A higher employability has been linked in particular to higher employment rates across older persons, as was emphasised by a recent study by CEDEFOP (2012). Finally, a relationship between LLL participation and the innovative performance of a country has been observed (Desmedt (2006)), though the direction of this relationship is still to be proved.

For the **unemployed** as well, the available evidence points to beneficial effects of training participation on the probability of (re-)entering employment[2]. For an overview of relevant studies, we refer to Nicaise en Bollens (1998). However, critical authors have emphasised that training should not be seen as an alternative to social policy (Van Damme (1996); Crouch, Finegold & Sako (1999)): even though participation in training increases the chances of the individual job-seeker to find a job, this does not necessarily change the demand for labour (which is rather a function of the broader socio-economic context). Hence the effect of retraining will be mostly redistributive (substitution effects: the retrained jobseeker takes the place that another job-seeker would have taken in the absence of training; Nicaise en Bollens (1998)). Still, it has been argued that even in this case training

[2] Some authors have argued that, in order to be effective, training for the unemployed should not only involve work-specific skills but also work on attitudes, job search assistance, and preferably involve direct work experience (cf. IBO's). To use the terminology of Knipprath and De Rick (2013) on career competences: this kind of training should not only be about the know-how, but also about the know-whom and know-why.

could be valued because it reduces long-term unemployment and avoids a structural divide between the unemployed and the employed, which is beneficial on its own (e.g. in terms of social cohesion; Van Damme (1996)).

While the effects of job-related training have been intensively examined, studies on the effect of LLL on **social cohesion and citizenship** are still emerging. Recent contributions by Green, Preston & Janmaat (2006); Green (2006), Green (2011) and Janmaat, Duru-Bellat, Philippe & Green (2013) have argued that in times of increasing individualization LLL can achieve higher levels of social trust, at least when it is distributed equitably.

Finally, one particular role **adult education** has to play is to allow older individuals to close some of the education gap with younger respondents, a gap that has widened because of fast educational expansion. Another pressing issue is the need to successfully integrate relatively large segments of newly arrived migrants, often relatively low educated and often unable to speak the language of the arrival country.

2.3 The LLL-landscape in Flanders

In this paragraph, we will summarise the main contours of the LLL-landscape in Flanders, according to the four sectors defined above. Our purpose is to introduce the profile of different forms of adult education in Flanders, as a guide to interpreting the results from the international surveys later on. However, we do not intend to provide an in-depth analysis of the LLL field in Flanders, which would be outside the scope of this report; extensive information on LLL in Flanders can be found elsewhere (Bollens, Vanhoren & Baert (2004); Huyghe, Brysse, De Vos, and Buyens (2003a), Ministerie van de Vlaamse Gemeenschap (2005); Thu Dang Kim and Pelleriaux (2006)).

Table 1 presents the number of participants in each Adult Education activity on the basis of Statistisch Jaarboek Onderwijs (http://www.ond.vlaanderen.be/onderwijsstatistieken, information for 2012-2013). The statistics distinguish between age groups and between areas of study, but not at the same time; hence, while the enrolment figures were restricted to adults above 25, the percentages regarding the areas of study are based on the full age span. In 2012-2013, about 300.000 adults seem to have participated in some form of adult education (note that in principle, persons can participate in more than one type of adult education and this results in double counting). A sizeable share of adult education participation is related to NT2 (Dutch for non-native speakers) and to language classes.

Table 1: Enrolments in adult education in Flanders

Enrolments (unique persons, born in 1987 or before)		**Of which… (all ages)**	
Basic education (primary & lower secondary level)	35.000	Of which NT2	60-70%
Secondary adult education (secondary level)	240.000	Of which NT2	25%
		Of which foreign language	25%
		Of which ICT	15%
		Taking the general module	3%
HBO5-level	12.000		
Higher education	45.000		

Table 2 presents some figures regarding the participation in other forms of LLL (training and formation). These figures are mainly based on the overviews referred to above. Note that these figures are far less precise than the enrolment statistics in adult education (moreover, they do not distinguish between ages, except for DKO). The commercial services and firms offering training clearly represent a very large part of the training supply (data from the CVTS showed that the majority of job-related training hours is delivered by commercial services), but information on the number of participants in this kind of training is also the most difficult to observe. The estimation in Table 2 was taken from the VIONA-report by Huyghe, Brysse, De Vos, and Buyens (2003b) and was based on a database from a private company monitoring commercial training services. For the socio-cultural organisations accurate figures are not available either, though Bollens, Vanhoren & Baert (2004) (p. 70) estimate that on average Flemish respondents spend about as much time on this kind of courses than on the (usually better documented) job-related training.

Table 2: Participation in non-formal LLL in Flanders

Job-related training			
Syntra (number relating to certified training only)	27.000		
VDAB	130.000	Of which unemployed	100.000
Sectoral organisations (e.g. Cevora)	+100.000		
Commercial providers	850.000		
Socio-cultural formation			
Social-cultural organisations (Socius)	n/a		
DKO (Arts) (adults)	40.000		

Chapter 3 Data sources

Given its demonstrated benefits, and given the continuing emphasis of the transition into a 'knowledge-economy', LLL has become one of the key challenges for European policy. Within this framework, LLL policies have been mainly evaluated by benchmarking participation rates, determined by large-scale population surveys, across Member States (Boeren (2014)). Internationally comparable estimates of the LLL participation rate are usually collected through surveys. The benchmark of the European objectives relies on the Labour Force Survey, which we will compare with data from two other interesting sources[3], the Adult Education Survey (2011) and the Programme for the international Assessment of Adult Competencies (2012).

3.1 Data sources

The Labour Force Survey (LFS) is a large household survey in the European Union, which has as its main aim to provide results on labour market participation of people aged 15 and over. National statistical institutes (in Belgium: AD Statistiek, FOD Economie) are responsible for selecting the sample, translating the questionnaire, conducting the direct interviews, and forwarding the results to Eurostat in accordance with a common coding scheme. The LFS is collected quarterly; for comparability with the other two sources, in this report we will use the yearly data from 2011. The LFS contains information on participation in LLL in a reference period of 4 weeks prior to the survey.

The Adult Education Survey (AES) is a household survey in the European Union specifically focusing on participation in education and training activities by respondents aged 25 to 64. The last wave of the AES was collected in 2011. An important difference with the LFS is that the AES refers to participation in LLL during a reference period of 12 months preceding the survey.

The Programme for the international Assessment of Adult Competencies (PIAAC), a survey conducted by the OECD, is mainly targeted at measuring the literacy and numeracy skills of adults aged 15 to 64, and also paying attention to LLL participation in the 12 months prior to the survey. Data were collected in 2011-2012 in several European (Austria, Flanders, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, United Kingdom) and non-European countries (Australia, Canada, Japan, Korea, Russian Federation, United States).

Each of these data sources has its advantages and disadvantages. The figures by the LFS are probably the most reliable in a statistical sense, as it has a relatively large sample size (about 10 times as large as the AES and PIAAC samples) and as it reports relatively high response rates (as participation is often compulsory). However, the LFS mainly serves to report participation rates, but contains relatively little contextual information. By contrast, the Adult Education Survey is much richer than the LFS, reporting detailed information on the different LLL activities and on the reasons driving and

[3] Elaborate descriptions of these and other data sources on LLL can be found in Heylen en Nicaise (2007) and Knipprath and De Rick (2013).

the obstacles inhibiting LLL participation, as perceived by the respondents. The PIAAC data cover relatively similar information as the AES (e.g. on reasons and obstacles), while the presence of skill measures may be of additional value. However, a drawback of PIAAC may be that the data are relatively poorly documented.

Whereas in this report we mainly assess the comparability of LLL participation patterns depending on the data sources, we will explore the richness of the AES (and PIAAC) in our next report.

3.2 Sample

In order to achieve comparability with AES, we restricted the LFS- and PIAAC-samples to persons aged 25-64. We limited the LFS- and AES-sample to these countries that participated in PIAAC (Austria, Flanders, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, United Kingdom).

Table 3 lists the sample sizes (25-64) for the 17 countries participating in all three surveys (and the 6 non-European countries participating in PIAAC). Note the large difference in average sample size between the LFS on one hand and the AES and PIAAC on the other.

Table 3: Sample sizes

Country	LFS	AES	PIAAC	**Country**	LFS	AES	PIAAC
AT	99.589	5.754	4.133	**NL**	51.869	3.036	4.196
CZ	25.033	10.190	4.603	**NO**	13.899	3.336	3.983
DE	26.003	6.213	4.316	**PL**	233.182	27.633	4.893
DK	63.980	3.660	6.222	**SE**	192.517	3.096	3.627
EE	11.721	3.324	6.240	**SK**	58.436	5.000	4.566
ES	60.170	17.829	4.979	**UK**	45.540	3.524	7.587
FI	29.360	3.605	4.569	**US**	-	-	4.085
FL	27.905	3.150	4.052	**CA**	-	-	22.063
FR	266.302	13.857	5.812	**JP**	-	-	4.403
IE	119.186	12.582	5.229	**KR**	-	-	5.585
IT	340.214	11.593	4.065	**RU**	-	-	2.654

Note on the data for the Flemish Region

As we want to focus on the Flemish situation, and as PIAAC was only conducted within the Flemish Region, we limited the LFS sample to respondents living in the Flemish Region. However, the AES-data delivered by Eurostat do not contain information on the region the respondent lives in; this variable was recorded by the AD Statistiek, but was removed during the anonymization procedure at Eurostat. Hence, we were not able to identify the respondents from the Flemish Region in the AES-sample. As a proxy, we used the language in which the survey was completed to identify the Flemish respondents from the Belgian sample. This delimitation may differ from the respondents living in the Flemish Region because of 1) Dutch-speaking respondents living in Brussels and 2) non-Dutch-

speaking respondents living in the Flemish Region (although in principle, such persons were administered the Dutch survey).

To accommodate for this, we requested access (July 2014) to the Belgian source data for the AES, as these still contain the regional information. Due to privacy protection protocols, these data have not been made available until a late stage for this report (January 2015). Hence, while the Flemish figures in this report are based on the internationally distributed AES-data (i.e. with language identification), we additionally performed a small check of the comparability of the LLL patterns with the original source data (i.e. with region identification). As this comparison, which can be found in the Appendix, shows, the difference between the participation rates registered on the basis of the two different identifications of Flemish respondents (language and region) is very small. Hence, the identification applied in the remainder of the report does not seem to have any major influence on the observed patterns.

3.3 LLL variables

In this paragraph we will consider the way in which the three different surveys collected data on LLL participation. In all three surveys, LLL participation was determined by combining the answers on two separate sub-questions, one on *formal education* participation and one on *non-formal education participation* (Table 4), the former referring to programmes offered by regular educational institutions and leading to a recognised qualification, and the latter referring to other learning activities that take place on an organised basis, but without a clear qualification framework and organised outside the regular education system[4].

[4] Besides these two forms, the AES also distinguished a third form of LLL, *informal* LLL, referring to learning activities performed without a clear organizational context, like intentionally searching for information in a library or on the Internet. As informal learning is – by its very nature – very difficult to measure accurately, attention is often only paid to formal and non-formal learning. However, this does not mean that informal learning could not be important from a policy perspective. Instead, as Baert en Vanden Eynde (2014) argue, informal learning may be a very important way for lower skilled employees to learn: '*De nadruk op participatiepercentages op zich miskent vooral de rol van het leren in een informele context waar leren niet centraal staat, maar wel volop mogelijk is. Dat 'werkend leren' valt niet te tellen in termen van bijvoorbeeld cursusuren, modules of deelnemersaantallen. Het leren in een informele setting is voor alle werknemers belangrijk, maar in het bijzonder ook voor de laag- of kortgeschoolden die vaak alleen in een informele context leren en van wie het leren dus vaak onzichtbaar of 'ontelbaar' blijft*'.

Table 4: Survey questions on LLL participation

	LFS		AES		PIAAC	
Concept	**Variable**	**Dutch question**	**Var.**	**Dutch question**	**Var.**	**Dutch question**
Participation in formal education	EDUCSTAT	Was u tijdens de referentiemaand student of leerling in het regulier onderwijs met inbegrip van leercontract en sociale promotie?	FED	Hebt u tijdens de voorbije 12 maanden één of meerdere formele opleidingen of cursussen gevolgd in één van de volgende instellingen voor formeel onderwijs (voor uw werk of voor privédoeleinden/hobby)?	FE12	Hebt u tijdens de laatste 12 maanden een voltijdse of deeltijdse formele opleiding gevolgd?
Participation in non-formal education	COURATT	Heeft u tijdens de referentiemaand deelgenomen aan cursussen, seminaries, conferenties, enz. buiten het regulier onderwijssysteem?	NFE	Heeft u aan één of meerdere niet-formele opleidingsactiviteiten deelgenomen tijdens de voorbije 12 maanden met de bedoeling om uw kennis of vaardigheden in een bepaald gebied te verbeteren (voor uw werk of voor privédoeleinden/hobby). Afzonderlijk: • Cursussen, vormingen, (beroeps)opleidingen of gecombineerde cursussen • Workshop, seminarie, conferentie, studiedag, congres, voordracht, lezing, toespraak enz. • On-the-job-training (leren op de werkplek) • Privélessen	NFE12	We zouden het nu graag hebben over andere georganiseerde leeractiviteiten waaraan u al dan niet hebt deelgenomen tijdens de laatste 12 maanden, het gaat zowel over werkgerelateerde als niet-werkgerelateerde activiteiten. Afzonderlijk: • Open of afstandsonderwijs • Georganiseerde opleiding op de werkplaats of een opleiding georganiseerd door uw baas of collega's • Seminaries of workshops • Andere cursussen of privélessen

Chapter 4 Observed patterns in participation

4.1 Overall participation rates

Figure 1 presents the participation rates according to the different surveys. Note that due to the difference in reference period, the absolute rates cannot be compared between LFS on one hand and the AES and PIAAC on the other.

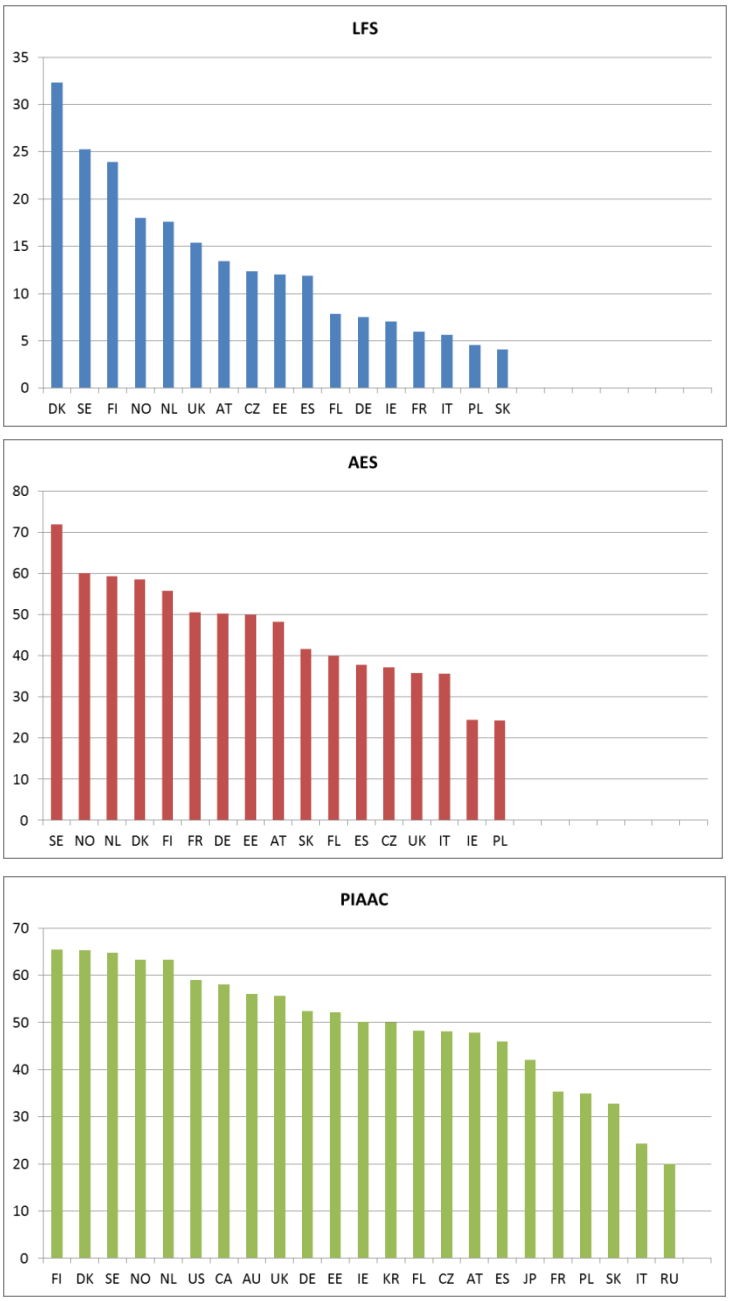


Figure 1: Participation rates in three different surveys

Consistently across all surveys, the Scandinavian countries (Denmark, Sweden, Finland, Norway), plus the Netherlands, report the highest participation rates. PIAAC shows that the Anglo-Saxon countries (UK, US, Canada, Australia) are highly ranked as well, while Continental-European countries (Austria, Flanders, Germany, France) report lower participation rates and most Southern (Spain, Italy) and Central and Eastern European countries (Poland, Slovak Republic) trail even further behind.

Similar country rankings have been perceived in a variety of other data sources (see e.g. Djait en Boey (2014) for other waves of LFS-data, Nicaise (2014), Boeren and Nicaise (2011) and Boateng (2009) for the first wave of the AES (2007), and Desjardins, Milana & Rubenson (2006) for the IALS (1994-1996), the predecessor of PIAAC). It is then interesting to see how these patterns correspond to the educational regime typologies we developed earlier in this research line (Lavrijsen, Nicaise, and Poesen-Vandeputte (2014)): the social-democratic and the liberal welfare states seem to be more able to incentivise their citizens to LLL participation than the conservative and Mediterranean welfare states.

Many authors have sought to explain this correspondence (Rees (2013); Riddell, Markowitsch & Weedon (2012); Hefler, Ringler, Rammel & Markowitsch (2010); Green (2006); Saar, Ure & Desjardins (2013)); recently, the European Journal of Education dedicated a special issue to this end (Desjardins en Rubenson (2013a)). Their common explanation argues that participation is not a mere individual decision, but should rather be regarded as an interplay between individual choices and a broader context that limits possible choices and makes participation less or more attractive, accessible and advantageous. For example, macro-variables such as the economic climate (e.g. employment rate), labour market design (e.g. trade union involvement) and social policies (e.g. generosity of unemployment benefits) have been shown to influence participation rates (Desmedt (2006)). As in this perspective individuals are no longer isolated 'agents' deciding whether or not to participate, but rather agents 'bounded' by the contexts in which they have to act, this general insight was called the 'Bounded Agency Model' (Rubenson en Desjardins (2009); Boeren (2011); Boeren, Nicaise & Baert (2010); Desjardins en Rubenson (2013b)).

Hence, Rubenson en Desjardins (2009) argue that participation can be hampered by different types of barriers: *situational* (e.g. one has no time because of family duties, or one receives no support from the employer and hence has not time to participate), *institutional* (e.g. there is no appropriate training on offer at reasonable distance, or enrolment fees are too high) or *dispositional* (e.g. one is not convinced of the value of LLL, or one has had negative experiences with learning). Welfare state design influences the height of all these possible barriers. For example, the Scandinavian welfare states tend to supply affordable child care to all, trade unions have often negotiated training arrangements with employers, high-quality adult education institutions have been funded with public funding over the country, and educational systems have been reformed with high regard for the issue of educational equity and quality schooling for all. Hence, these welfare states increase the 'capacity' of all its citizens to participate, leading to high participation in all social groups. By contrast, Anglo-Saxon welfare states rely much more on the market and offer less social protection. Here, high LLL participation is a consequence of increased incentives rather than reduced barriers: continuous investment in human capital is crucial to survive in the deregulated labour market. However, while this will boost the average training rate, it may lead to wider inequalities as well, as not all social groups are equally well prepared to access (mostly privately organised and hence expensive) training.

It has also been suggested that association with the welfare states should be accompanied with a varieties of capitalism perspective (Rees (2013)). The main issue here is that even when barriers are reduced and incentives increased, participation in job-related training also depends on the behaviour of employers: even though everyone recognises the value of training, employers will avoid investing in it when the risk of 'poaching' is too high (i.e. after the training the employee may leave and join a competing firm that does not invest in LLL and uses the saved costs to offer the employee higher wages). Hence, training is an example of a coordination problem (Crouch, Finegold & Sako (1999)), and the 'pooling' of risks, e.g. through corporatist structures, may be a way to avoid this dilemma. This is why at least in the coordinated market economies, the social partners are often deeply involved in the supply of training opportunities. For example, the Flemish '*sectorfondsen*' (financed by employer contributions and governed by employers and trade unions) playing key roles in developing and distributing training opportunities (Sels (2009)).

4.2 Disadvantaged groups

In this research, we focus on LLL participation among disadvantaged groups. In the literature (Boeren, Nicaise & Baert (2010); Robert (2012); Desjardins, Milana & Rubenson (2006)), several disadvantaged groups have been identified. For example, Boeren, Nicaise & Baert (2010) explain why age and sex often have an impact on LLL participation: older individuals have lower participation probabilities because they have fewer long-term prospects in the labour market or because they may have lost the required key competences to successfully engage in LLL, while women participate less because of their greater share in family responsibilities and/or lower employer support. In this report, we will focus on the effect of adults' initial educational attainment on LLL participation, with age and sex as control variables.

4.2.1 The low-educated and LLL

It has been shown repeatedly that those with a low initial level of education (or equivalently, those with low skills) have fewer chances to participate in further learning as well. Figure 2 illustrates this on the LFS-data: in each country, the low educated participate less in LLL than the high-educated. However, the figure (ordered according to the participation rate among the highest educated) also shows that the effect is not equally strong everywhere; for example, in Austria and the Czech Republic the participation rates among the low educated are even lower than expected, while the Netherlands stands out in the opposite sense.

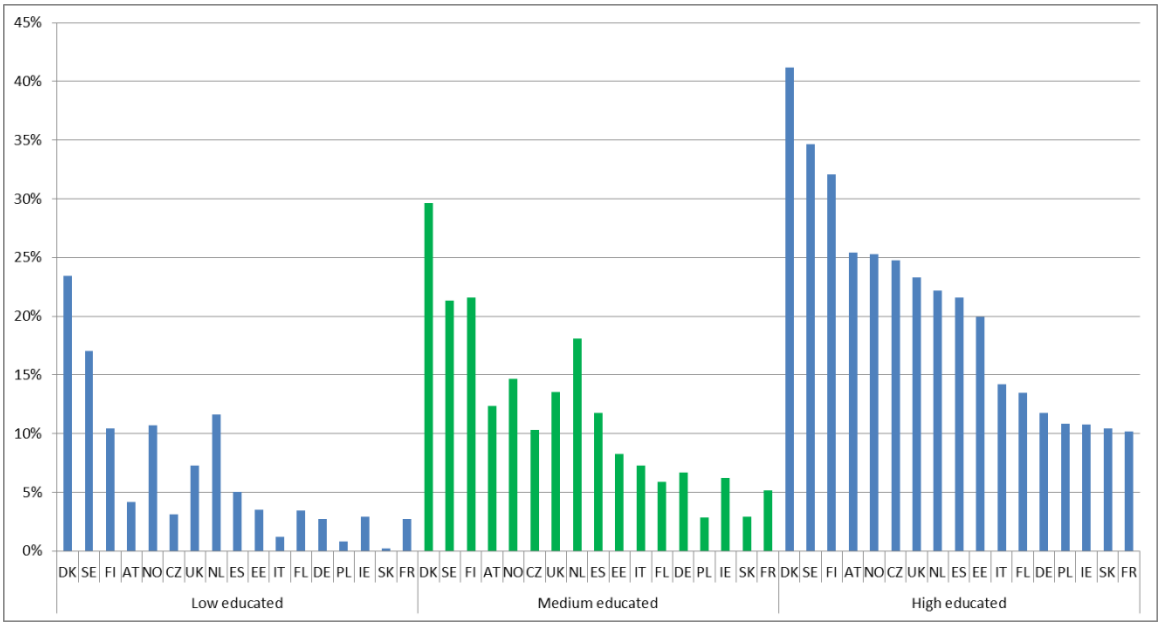


Figure 2: LLL participation and initial education

Similar findings can be produced using the AES and PIAAC. In order to provide a more compact presentation, we run logistic regression models in which the probability to participate in lifelong learning is explained by the initial education level, with '0' for a low education level (ISCED 0-2), '1' for a medium level (ISCED 3-4) and '2' for a high level (ISCED 5-6), with sex (0=men, 1=women) and age as controls. Table 5 summarises the results (positive estimates = higher LLL participation). The

coefficients for our variable of interest, educational level, are shown in the last three columns and are also depicted graphically in Figure 3.

Table 5: Individual characteristics influencing LL L participation **(all coefficients are significant at the 0.01-level, except those for sex in the LFS-data for DK (p<0.05) and EE, SK, IT, NL, CZ, DE, NO, NL, FL, IE (p > 0.05))**

	Sex			**Age**			**Educ. level**		
	LFS	AES	PIAAC	LFS	AES	PIAAC	**LFS**	**AES**	**PIAAC**
AT	0.31	0.05	-	-0.04	-0.02	-	**0.94**	**0.86**	-
CZ	0.06	0.05	-0.22	-0.03	-0.03	-0.03	**0.99**	**1.16**	**1.01**
DE	-0.02	-0.17	-0.18	-0.07	-0.03	-0.04	**0.72**	**0.95**	**1.05**
DK	0.61	0.25	0.19	-0.03	-0.03	-0.04	**0.37**	**0.76**	**0.81**
EE	0.38	0.15	0.25	-0.06	-0.04	-0.05	**0.96**	**0.99**	**1.01**
ES	0.15	-0.15	-0.14	-0.04	-0.02	-0.03	**0.73**	**0.72**	**0.86**
FI	0.38	0.53	0.30	-0.04	-0.04	-0.04	**0.55**	**0.74**	**1.08**
FL	0.07	-0.14	-0.02	-0.02	-0.03	-0.03	**0.73**	**1.06**	**1.04**
FR	0.13	0.01	-0.09	-0.04	-0.03	-0.02	**0.58**	**0.88**	**1.10**
IE	0.04	-0.08	-0.28	-0.03	-0.01	-0.01	**0.56**	**0.75**	**0.91**
IT	0.06	-0.23	-0.33	-0.05	-0.01	-0.03	**1.04**	**1.02**	**1.11**
NL	0.04	-0.26	-0.17	-0.04	-0.04	-0.04	**0.28**	**0.92**	**0.82**
NO	0.08	0.08	0.11	-0.04	-0.04	-0.05	**0.51**	**0.58**	**0.76**
PL	0.14	-0.02	-0.12	-0.07	-0.04	-0.04	**1.03**	**1.44**	**1.45**
SE	0.71	0.20	0.12	-0.03	-0.03	-0.03	**0.43**	**0.83**	**0.85**
SK	0.24	-0.10	-0.14	-0.05	-0.03	-0.02	**1.27**	**0.86**	**1.39**
UK	0.28	0.24	-0.15	-0.02	-0.02	-0.02	**0.64**	**0.54**	**0.79**

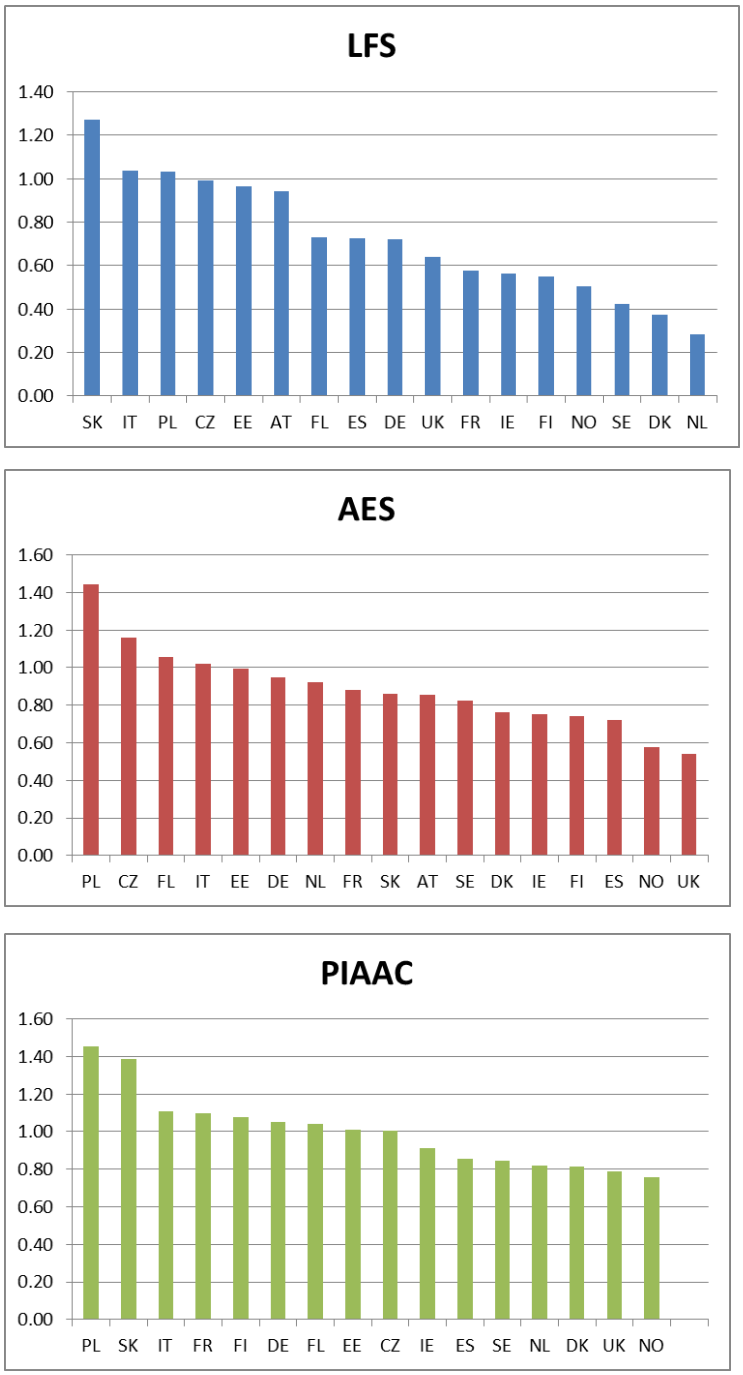


Figure 3: Size of the effect of initial education on LLL participation

The results show that age indeed has a clear negative effect everywhere, while the effect of gender seems to depend on the country and the survey. Importantly, in all three surveys, the effect of the initial educational level on participation is (very) strong. It seems the strongest in the Central and Eastern European countries and less strong in the Nordics, the Netherlands and the UK and Ireland.

In the literature, two main perspectives have been developed to explain why low-educated respondents participate less in LLL than other groups (cf. Nicaise (2003); Nicaise (2014)). First, the 'rational choice' perspective highlights that the evaluation of the costs and the benefits associated with LLL might differ depending on one's personal situation. Hence, a straightforward explanation is that LLL is particularly beneficial in those jobs which require continuously updated high skills, and

hence both employers and employees will be more eager to invest in the LLL of the highly educated. A related explanation is that it is 'safer' to invest in the highly-educated: these have already proven their ability to learn, and moreover can start from a broader base to build new skills on (skills beget skills). Finally, as the low-educated will often also has less financial resources, the costs (both direct (enrolment) and indirect costs (opportunity costs, child care …)) will be more difficult to bear.

Secondly, the psychological dimension stresses that personal experiences influence the attitude towards learning and hence the 'readiness' to participate in LLL (Boeren, Holford, Nicaise & Baert (2012); Kyndt, Govaerts & Dochy (2014); Gorard en Smith (2004)). Flemish survey data (Vanweddingen (2010)) have demonstrated that the attitude towards learning is a strong determinant of actual LLL participation. Hence, as low-educated individuals often had bad experiences in their initial school career, this may form an additional obstacle inhibiting participation in further education.

Given this double explanation, differences in the effect of initial education on LLL participation can be explained by differences in the way the obstacles for the lower educated are tackled. For example, Rubenson en Desjardins (2009) demonstrate how the Nordic systems have succeeded in removing most of these constraints.

In our next report, we will develop this argument into greater detail, relying on the reported barriers and incentives in the AES and PIAAC.

4.2.2 Effect of parental background

It also has been hypothesised that parental background could influence participation behaviour (the so-called 'long arm of the family'), e.g. because children from better-educated parents might be better acquainted with the 'habitus' of LLL participation and/or have better social networks offering access to LLL. Hence, those coming from advantaged families might find their way into LLL more easily (Jarvis (2009)).

As a check, we also estimated the effect of parental education on LLL participation, where this level was again operationalised as '0' for having parents with only low education (ISCED 0-2), '1' for having at least one parent with a medium level (ISCED 3-4) and '2' for having at least one parent with a high level of education (ISCED 5-6). Table 6 and Figure 4 again contain the results of two logistic models, again predicting the probability of participation in life-long learning in terms of individual characteristics, with and without controlling for the respondents own educational level. (We used the AES because the LFS do not contain parental education and because this variable is confronted with many missing values in PIAAC.)

Table 6: Effect of parental educational level on LLL participation (all coefficients are significant at the 0.01-level)

	AT	CZ	DE	DK	EE	ES	FI	FL	FR	IE	IT	NL	NO	PL	SE	SK	UK
Model 1																	
Sex	-0.05	0.03	-0.23	0.29	0.39	-0.10	0.66	-0.04	0.10	-0.02	-0.15	-0.30	0.13	0.16	0.30	0.05	0.20
Age	-0.02	-0.03	-0.02	-0.01	-0.03	-0.03	-0.04	-0.04	-0.03	-0.02	-0.02	-0.04	-0.03	-0.04	-0.02	-0.03	-0.02
Parental educational level	0.56	0.83	0.49	0.31	0.51	0.52	0.31	0.61	0.54	0.48	0.63	0.40	0.53	0.78	0.37	0.40	0.29
Model 2																	
Sex	0.03	0.06	-0.17	0.23	0.21	-0.15	0.54	-0.10	0.05	-0.08	-0.23	-0.26	0.11	0.00	0.19	-0.09	0.24
Age	-0.02	-0.02	-0.02	-0.01	-0.04	-0.02	-0.04	-0.03	-0.02	-0.01	-0.01	-0.03	-0.03	-0.03	-0.02	-0.03	-0.02
Parental educational level	0.35	0.45	0.26	0.08	0.29	0.25	0.17	0.26	0.28	0.23	0.18	0.17	0.30	0.34	0.14	0.05	0.15
Own educational level	0.75	1.00	0.85	0.79	0.83	0.66	0.69	0.95	0.80	0.68	0.97	0.79	0.52	1.31	0.81	0.84	0.50
Reduction in effect of parental education level by inclusion of own educational level	37%	45%	47%	74%	43%	52%	47%	57%	49%	52%	72%	56%	44%	57%	63%	88%	46%

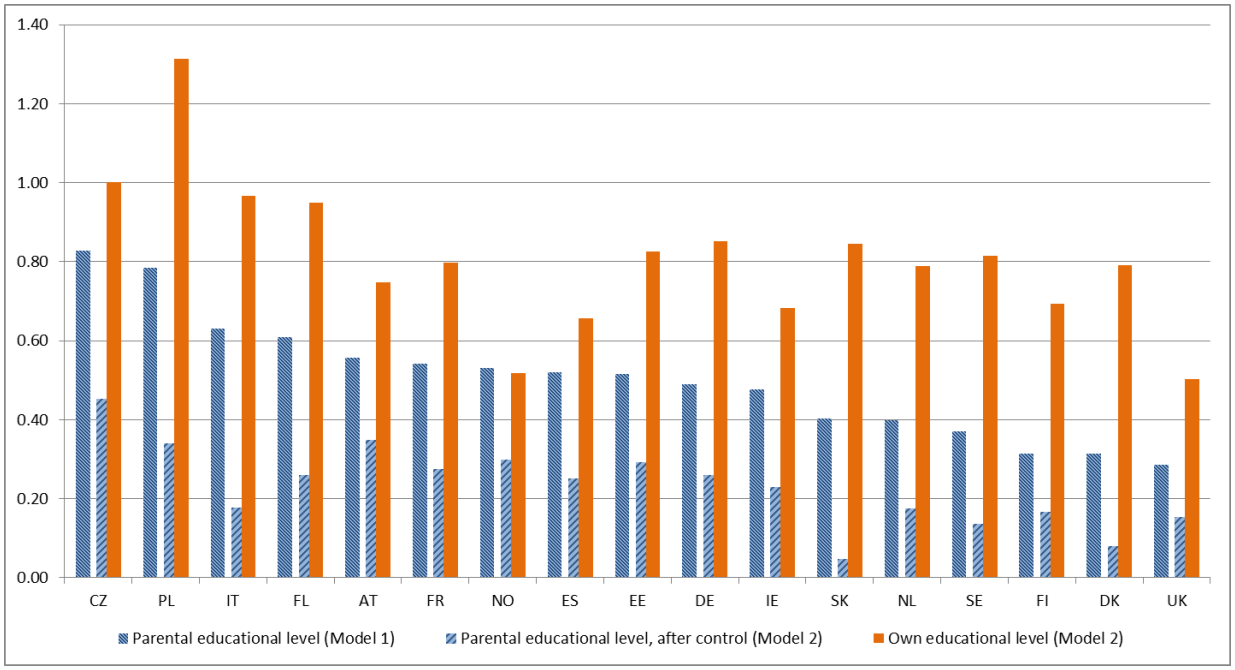


Figure 4: Effect of parental educational level on LLL participation

In Model 1, parental education indeed has a clear positive effect in all countries, though its size differs: it has the largest effect in Czech Republic, Poland and Italy and the smallest in the Nordics and the UK. However, if we also include the respondents' own educational level (to which parental education is of course correlated, see e.g. Lavrijsen and Nicaise (2013)) the effect of parental education shrinks: on average, it diminishes to less than 50% of its original value. The main effect of the respondents' own educational level on LLL participation is far more important than that of the parental educational level. This can be seen as a sign of the meritocratic tendency (Bell (1976); Halsey, Heath & Ridge (1980)): in modern societies, destinations are increasingly related to educational achievement rather than to mere ascription; education is thus '*increasingly the mediator of the transmission of status between generations*'.

Chapter 5 Some issues further explored

5.1 Comparability between surveys

Above, we saw that all three surveys confirmed a certain correspondence between LLL participation patterns and welfare state / educational regime typologies. However, closer inspection of the observed participation rates reveals some discrepancies between the different data sources as well. For example, some of the countries performing relatively weakly in the LFS-ranking had significantly better results in the AES (e.g. France), while the reverse was true for other countries (UK, Ireland). Figure 5 shows that the overall correlation between the rates is large, but far from perfect (the correlation between LFS and AES is 0.70, that between LFS and PIAAC 0.84, and that between AES and PIAAC 0.66)[5].

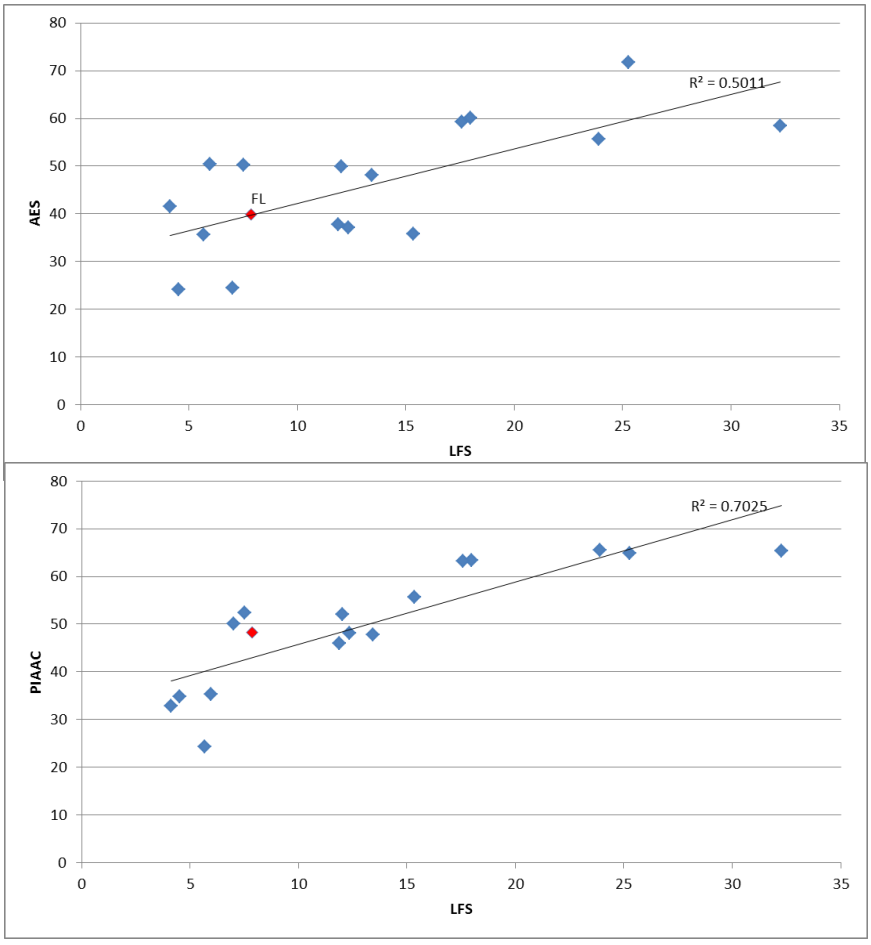


Figure 5: Comparison of LLL participation rates observed in different surveys

[5] The observation that LLL rankings can differ according to the data source is not new; it was also made by Boeren and Nicaise (2012) comparing the LFS with the earlier AES 2007 wave and by Vanderbiesen en Herremans (2014) comparing the LFS with results from the Continuing Vocational Training Survey (CVTS) and the European Working Conditions Survey (EWCS).

Differences in LLL participation patterns between surveys have been mostly explained by two arguments. First, it has been argued that **differences in the definition of variables** and the formulation of questions may lead to different estimates of LLL participation across surveys and countries. This was explored e.g. for the LFS and (the first wave of the) AES by Eurostat (2011) and for the current AES wave by Eurostat (2014)).

First, an important difference between the three surveys is that the reference period was 4 weeks in LFS and 12 months in AES and PIAAC. There is no unique link between participation rates observed over 4 weeks and participation rates observed over 12 months: two countries A and B may have the same monthly participation rate (e.g. 10%), but this may correspond to a yearly rate of 10% in country A (if the same 10% of the respondents participated in LLL every month again) and to a yearly rate of 100% in country B (if every month another 10% of the population participated). Hence, the way lifelong learning is distributed over the population in a country can impact on the relationship between the participation rates observed in LFS and those from AES and PIAAC.

Secondly, the description of what exactly is counted as LLL, and how the questions are formulated, might differ across surveys[6]. In our case, formal education was defined rather consistently across the three surveys AES, LFS and PIAAC (see Chapter 3): the concept refers to a restricted number of activities organised within a clearly demarcated educational system. By contrast, the description of non-formal education differed across the three surveys. For example, the LFS limits non-formal education to '*courses, seminars, conferences or private lessons or instructions outside the regular education system*', while the AES and PIAAC define these activities into detail, cover each instance separately (which may have influenced response behaviour), and explicitly refer to a category of LLL participation which is absent in the LFS-survey, i.e. on the job training.

A second group of explanations relate to **differences in the way the data are collected**. This matters in particular because it might influence the non-response rate, and in general, a high non-response rate is associated with a higher risk of positive self-selection (those who participated in LLL have higher odds to participate in a survey about LLL), and hence an upward bias of the reported participation rate. In our case, participation in the LFS is compulsory in most countries, which leads to a relatively small non-response. In the AES, however, participation is compulsory only in a few countries (France, Italy, Spain), while PIAAC was not compulsory at all. Another example of a survey design effect is the use of proxies: in the LFS, questions can be answered by other household members when a respondent is absent, which may influence reported participation rates e.g. because the proxy is not aware of all LLL activities in which the absent respondent participated.

Additionally, a specific feature of the *Belgian* AES (2011)[7] is that it was operated as a 'drop-off' to the LFS, i.e. the person with the last birthday in the household was asked to complete the questionnaire on their own and submit it by post - or to complete the websurvey online (although in principle they could ask for assistance by phone). This is in fact an exceptional approach: in the other countries the AES was completed with the assistance of an interviewer. The LFS and PIAAC are regularly completed

[6] Holford and Mleczko (2011) have shown that also within a single data source (i.e. the LFS) there may be severe differences across countries in the way they translated the international survey guidelines into national questionnaires; for example, including more explicit examples of possible LLL-activities might lead to higher reported participation rates.

[7] In the AES (2008), the AES was operated as a stand-alone, i.e. without the coupling with the LFS: the sampled individuals were just sent a letter in which they were asked to complete the survey. This led to even lower response rates (33% in 2008, 42% in 2011).

with assistance as well (also in Belgium). This specific feature of the Belgian AES may have many different consequences[8]:

- it may lead to higher non-response in comparison to countries with an interviewer assisted survey (of all countries, the non-response rate was indeed the highest in Belgium);
- it may have increased the risk of misinterpretation and misclassification;
- on the other hand, the absence of an interviewer may leave respondents more time to think about their answers (or e.g. to check their calendar when asked about participation in LLL activities in the preceding 12 months) - and hence to answer more accurately. In the presence of an interviewer, respondents may feel they need to answer quickly.

An interesting feature of this 'drop-off' design is that it allows coupling the AES-data to LFS-data: for each respondent in the AES, we can trace the answers on the LFS. Moreover, the Belgian LFS-questionnaire also registered LLL participation in the preceding 12 months (in addition to the participation in the last 4 weeks, as required by the international definition). Hence, we can compare LLL participation patterns between both surveys without any difference in the definition of the reference period or in the sample: the same respondents have been asked more or less the same questions. The findings, recorded in the Appendix, seem to suggest that, even with these restrictions, the research design still caused major discrepancies in the reported participation patterns: in particular, smaller activities tend to be 'forgotten' in the LFS-survey design, while the framing of the question (e.g. explicit reference to on-the-job-training in the AES) seems to make a difference too.

[8] Correspondence with the AD Statistiek, dd. 20.01.2015.

5.2 Is all participation equally important?

As outlined above, LLL is often treated as a clearly demarcated concept, merging information on very different forms of LLL in one dichotomous variable (yes/no). However, such a reduction of information might be unfortunate for two reasons. First, it neglects possible differences in the *character* of participation. For example, engaging in full-time second chance education, which offers a fully developed curriculum and is aimed at obtaining an official degree with a large 'civil effect', may have a completely different meaning (both for the participant and for society) than participation in a single, short non-formal learning activity. LLL activities may also have a varying *intensity*: an activity may last less than one hour, but it could also engage participants on a full-time basis. To the extent that the average intensity of LLL differs across countries (as was argued e.g. by Boeren and Nicaise (2012) and by Hefler, Ringler, Rammel & Markowitsch (2010)), neglecting this intensity by focussing solely on the binary participation variable may bias the picture of the 'dedication' of countries to LLL in international comparisons.

A minimal way of accommodating for possible differences in character and intensity of different LLL activities may be to **distinguish between formal and non-formal forms of LLL**, with formal LLL referring to programmes supplied by regular educational institutions and leading to a recognised qualification, and non-formal LLL to other learning activities that take place on an organised basis, but without a clear qualification framework and outside the educational system. In general, formal and non-formal activities differ both in their character and by their intensity, as a substantial engagement is usually expected in programmes which are awarded by an official qualification (note that the Belgian AES-questionnaire explicitly mentions a long duration ('several months') as a criterion to distinguish a LLL activity as formal education). At the same time, the comparability of the formal/non-formal demarcation across countries needs to be handled with caution. For example, the quality report on the first wave of the AES (2007) by Eurostat (2010) revealed that Member States encountered several difficulties in distinguishing between the concepts of formal and non-formal (and informal) learning, implying that the distinction between formal and non-formal education could not always be made sharply[9]. For the LFS (2003) data, Hefler, Ringler, Rammel & Markowitsch (2010) as well demonstrated that countries differed in their definitions of these concepts: in most countries, typical non-formal learning activities lasted only a few hours to a few days, but in other countries a sizeable proportion of the respondents reported non-formal learning activities that consisted of a much larger volume of time (over 100 or 200 hours per year). The other way round, it has been argued that not all formal programmes are necessarily equally intensive, e.g. due to modularisation of programmes. For example, Flanders reported a relatively high participation rate in formal education in the AES 2007, but only an average number of hours spent in formal education, which may have been related to the strong trend towards modularization of second-chance programmes (Boeren and Nicaise (2012).

Hence, in order to arrive at a better view of the intensity of LLL participation in different countries, we should consider the **number of hours** spent in LLL. However, only the AES has such information for both formal and non-formal LLL, while it was limited to non-formal activities in LFS and PIAAC.

[9] Two examples of the difficulty of this distinction from the Belgian (Flemish) AES-questionnaire are: foreign language courses provided in a CVO are classified as formal, but those provided by commercial organizations as non-formal; SYNTRA-courses are classified as formal, but VDAB-courses are classified as non-formal.

5.2.1 The distinction between formal and non-formal education

We will start by distinguishing between participation in formal and non-formal learning. Figure 6 shows the participation rates in formal and non-formal education separately. Figure 7 focuses on the shifts between both figures by comparing ratios between non-formal and formal participation rates. (For example, in the Flemish LFS-sample the non-formal participation rate was 5,53% and the formal rate 2,53%; hence, the ratio between both is 2,19.) The larger the bar, the more dominant non-formal education is relative to formal education.

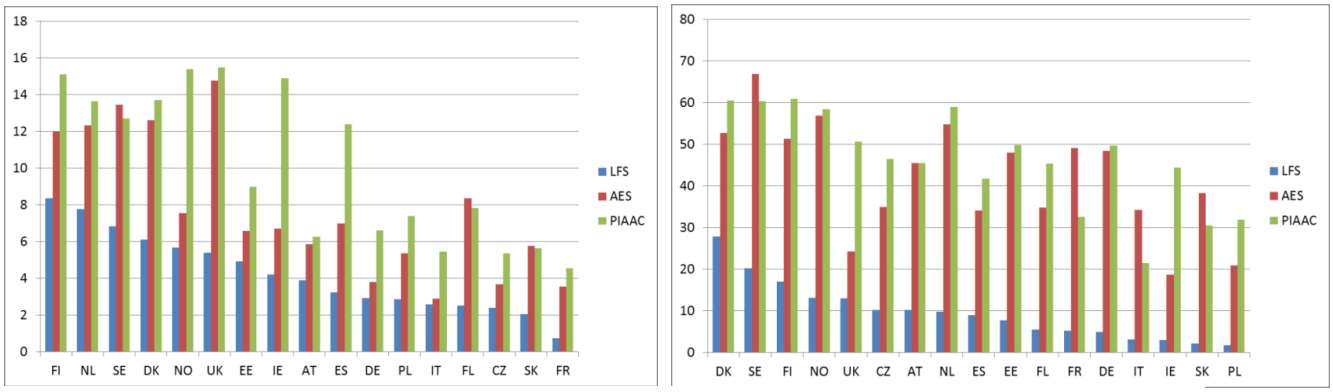


Figure 6: Left panel: participation in formal LLL. Right panel: participation in non-formal LLL.

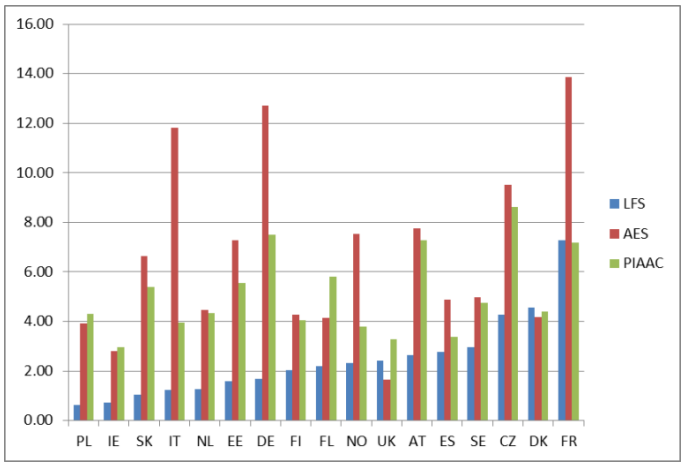


Figure 7: Ratio between NF and F participation rate

Firstly, whereas the rankings for both types of LLL correspond to some degree to each other (e.g. the Nordic countries are on top of both lists), there are also some important shifts between both panels in Figure 6. Indeed, Figure 7 shows that the ratio between formal and non-formal education is not the same in each country. There are far more respondents reporting participation in non-formal learning than in formal learning everywhere, but formal education seems relatively more important in Poland and Ireland (and, according to the AES and PIAAC, in the UK). The balance tilts completely in favour of non-formal education in France and Czech Republic (and, at least according to the AES and PIAAC, in Germany). Note that the balance in Flanders is close to the average, contradicting earlier observations based on the previous wave of the AES, in which in particular formal education seemed much more prominent in Flanders, see Nicaise (2014). This could be due both to a real

decline in formal LLL participation between 2008 and 2011, but it seems very likely that methodological choices have influence this result too (in particular, high self-selection in AES (2008), see above).

Secondly, different surveys show different ratios between non-formal and formal education. In particular, the large difference in the average balance between the LFS on one hand and the AES and PIAAC (with the LFS capturing relatively few non-formal participants for each formal participant, Figure 7) could be best explained by the differences in the reference period (LFS: 4 weeks, AES and PIAAC: 12 months)[10]. As we will see below, an average non-formal participant (in the AES) participates in one or two activities a year, with each activity lasting between 10 and 20 hours on average. If we assume that each such activity takes place within a single month, restricting the reference period to one month (as in the LFS) means that participants in non-formal education during the preceding year (as in the AES and PIAAC) only have a relatively small chance to still report non-formal participation during the preceding month (as in the LFS). By contrast, participation in formal education implies a far more intensive engagement (on average about 300 hours a year, see below), and is probably spread out more uniformly across the year. Restricting the reference period to one month will thus be less influential for formal participation, and a higher weight of formal education relative to non-formal education will be observed in the LFS.

[10] Indeed, in the coupled Flemish source dataset for the AES/LFS (containing both the results for the LFS and the AES *with reference periods of 12 months in both*) the ratio between the formal and non-formal rate was 4.3 for the LFS as well (18.7/4.3).

5.2.2 Intensity

In this paragraph, we will use information on the reported number of hours spent in LLL to consider if there are any cross-country differences in the average intensity of a LLL activity. The AES is the only survey containing information on the number of hours spent in both formal (FEDNBHOURS) and non-formal education, and we will use it as our principal source. However, note that information on non-formal hours is available only for the three activities (NFENBHOURS1-3); the data further contain an indication of the number of non-formal activities the participant participated in (NFENUM). We will additionally compare our results with the available information from LFS and PIAAC, which both have information on the number of hours spent in *all* non-formal education (LFS: COURLEN, PIAAC: NFEHRS) (but not on formal hours).

5.2.2.1 Formal education

We will start with the analysis of the reported number of hours in formal education in the AES. Unfortunately, the data collected seems to have a relatively degree of inaccuracy for a number of countries. First, there is a large number of missing data from several countries, in particular Norway and Estonia.

Table 7: Missing data for numbers of hours in formal LLL

Country	Missing (%)	Country	Missing	Country	Missing
NO	60.78	AT	12.11	IT	1.79
EE	30.73	ES	6.70	DK	1.21
FL	19.12	PL	5.41	DE	0.00
FI	15.13	CZ	3.49	IE	0.00
NL	14.41	SE	3.22	SK	0.00
UK	12.50	FR	2.63		

Secondly, many countries have applied top-coding in order to prevent unrealistically large numbers of hours to influence aggregate measures. For example, the Belgian manual for the coding of AES-data suggests that a reported intensity of more than 2600 hours a year (corresponding to a course of 10 hours a day, 5 days a week, for 52 weeks) may be unlikely. While we do not have similar information from the other countries, the distribution of the data seems to reflect such choices (Table 8). For example, the data from France, Norway and Poland seem to have been top-coded at 999 of hours per year (note that in those countries between 5 and 10% of the respondents report precisely this top coding). Further note the unrealistically low maximum reported in the Netherlands. This seems to indicate a flaw in the Dutch data (confirmed by correspondence with AD Statistiek, February 2015). On the other end, the UK data seem to report unrealistically high participation hours (4692 hours would equal about 13 hours for each of the 365 days during a year. To accommodate comparisons across countries, we will further top-code all countries at 999 hours a year and not consider the Dutch data.

Table 8: Maximum reported numbers of hours in formal LLL

Country	Maximum	Country	Maximum	Country	Maximum
UK	4692	DK	1924	CZ	1610
IE	3640	DE	1872	FR	999
SE	3200	EE	1840	NO	999
ES	3000	SK	1820	PL	999
AT	2500	FL	1800	NL	64
FI	2000	IT	1800		

We then calculated the median and the mean number of hours reported by participants in formal education. Figure 8 demonstrates the large discrepancies across countries in the intensity of the typical formal education activity. On one end of the spectrum, respondents in Germany report a rather intensive participation in formal education, with a median value of 688 hours a year (about 18 FTE-weeks of 38 hours). On the other hand, formal education in Flanders and the UK consists mostly of relatively 'small' courses, with a median value of only 66 in the UK (or less than 2 FTE-weeks). We do not know yet what is causing this wide spread; possible reasons include differences in the way formal education has been modularised across countries and differences in the activities that are counted as formal education in the countries under study.

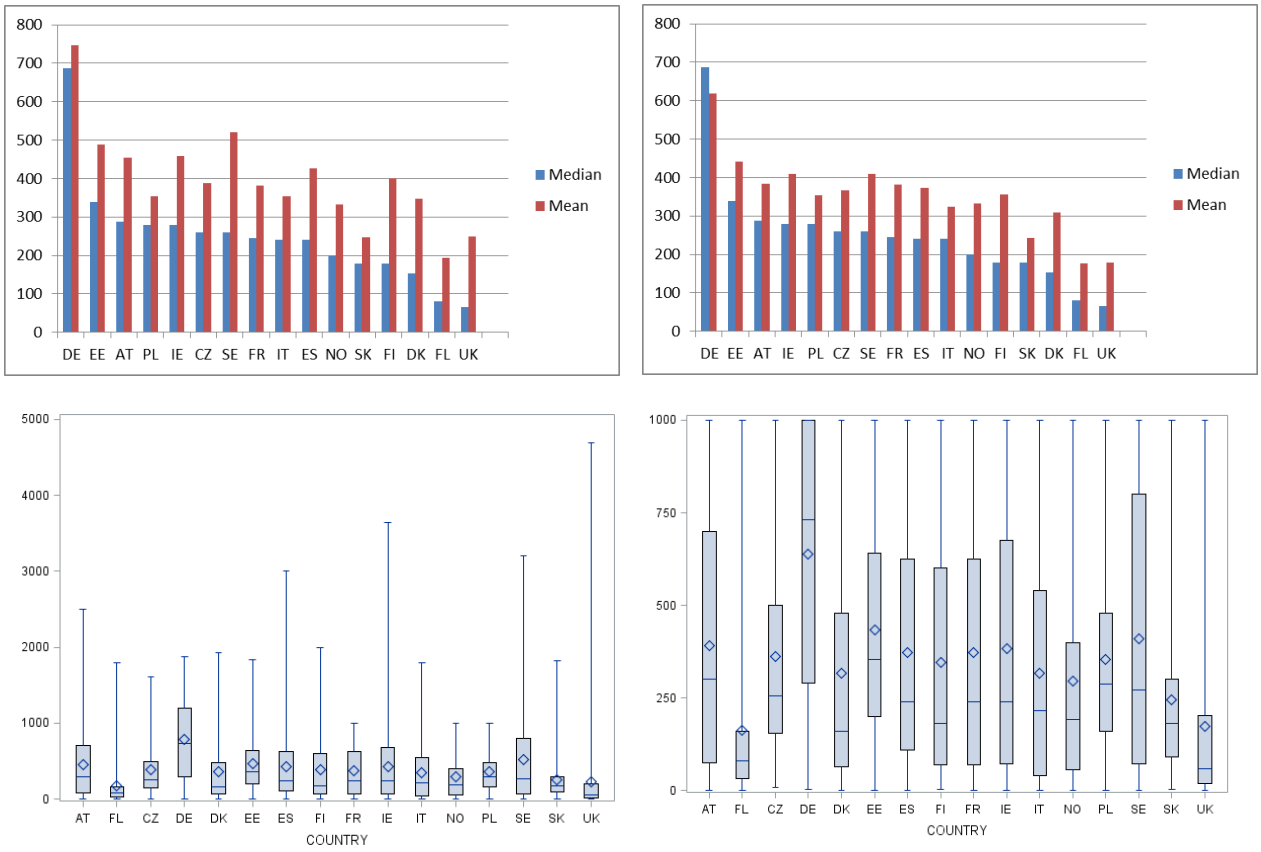


Figure 8: Mean, median and box-plot of reported number of hours (left: without top-coding, right: with top-coding)

5.2.2.2 Non-formal education

The data in the AES contain two indications on non-formal activities: first, the number of activities respondents reported to have participated in, and second, the duration of these activities, at least for three 'randomly selected' activities (but see below).

5.2.2.2.1 Number of non-formal activities

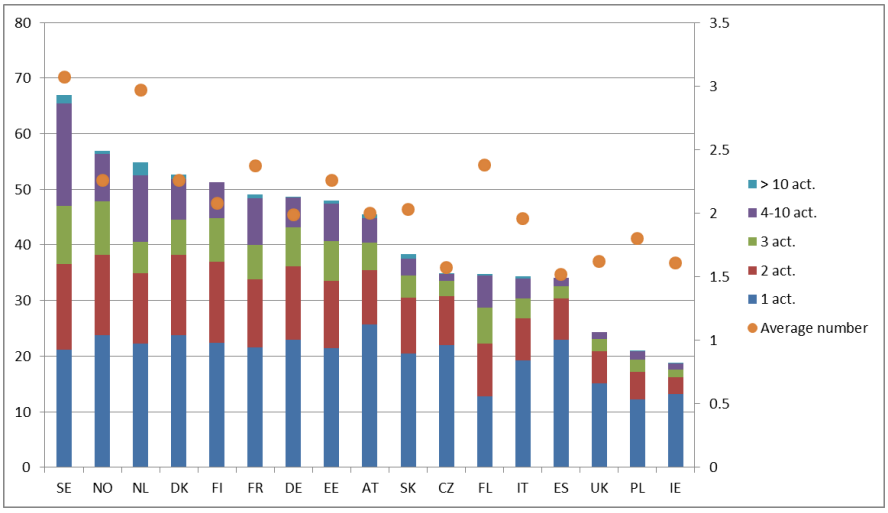


Figure 9: Reported number of non-formal activities

Figure 9 shows the share of respondents who reported participation in a specific number of non-formal activities, together with the average number of activities a participant in non-formal training reported participation in. The first observation is that, particularly in those countries with the lowest participation rates, most participants reported participation in only one activity. But also in some of the countries with high rates, the average reported number of activities is relatively low. The corresponding data from PIAAC seem to confirm the relatively low number of activities: depending on the country, between 25% and 50% of the non-formal participants reported to have participated in no more than 1 activity.

5.2.2.2.2 Intensity per non-formal activity

We now will calculate the average duration of a non-formal activity. The AES collects information on the number of hours invested in maximum three 'randomly selected' non-formal activities. When we look at the maximum reported number of hours (over all activities), we observe again that the Dutch maximum is extremely low, that the UK and Irish figures are extremely high, and that some countries seem to have used top-coding again. Hence, we applied the same data-cleaning as above (i.e. top-coding at 999 for all countries and removing the Dutch data). We additionally noted that in the UK, respondents reporting participation in two activities always reported their 2nd activity to be precisely as long as their 1st, independent from the precise number of hours reported (which ranged from 1 to 4200). This seems extremely unlikely; hence, we treated the data for the second activity in the UK as missing values.

Table 9: Maximum reported number of hours in non-formal LLL

Country	Maximum	Country	Maximum	Country	Maximum
UK	4200	SE	1460	FL	940
IE	3640	CZ	1100	NO	792
AT	1976	FR	999	IT	720
DK	1924	PL	999	SK	480
DE	1800	EE	960	NL	95
FI	1750	ES	960		

In contrast to the data on the hours spent in formal participation, missing data on the number of hours spent in the first non-formal activity are relatively low (except for Ireland). However, Ireland did not record any data, neither for the second nor the third activity, and several other countries (Germany, Spain, Italy, Norway, UK) did not record data for the third activity (which was optional).

Table 10: Missing data for numbers of hours in non-formal LLL

Country	1st	2nd	3rd	Country	1st	2nd	3rd
IE	36%	100%	100%	FI	2%	3%	2%
UK	13%	13%	100%	DK	2%	4%	4%
FL	12%	11%	12%	IT	1%	1%	100%
EE	5%	3%	12%	NL	1%	1%	2%
AT	5%	5%	6%	CZ	1%	1%	0%
ES	4%	5%	100%	FR	1%	1%	1%
PL	3%	3%	4%	SE	1%	1%	2%
NO	2%	3%	100%	DE	0%	0%	100%
				SK	0%	0%	0%

Figure 10 shows the mean number of hours reported for the three ‘randomly selected’ activities.

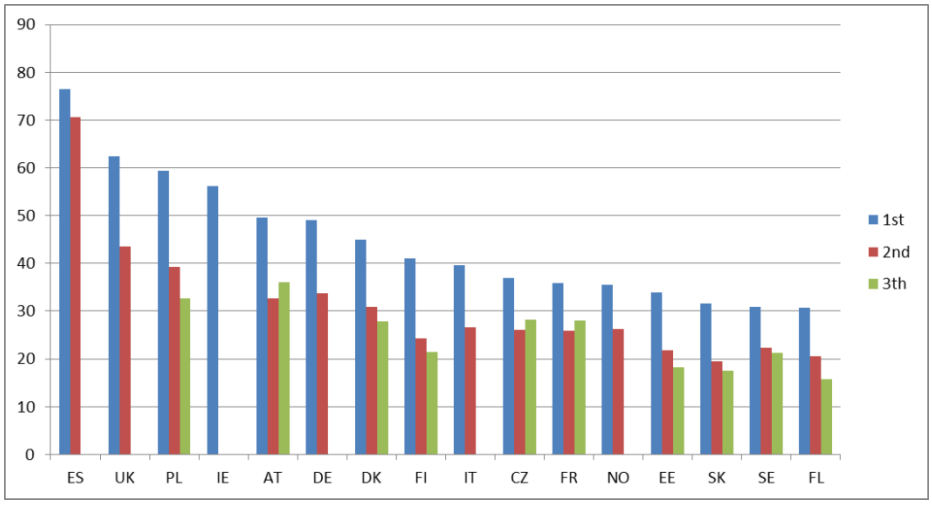


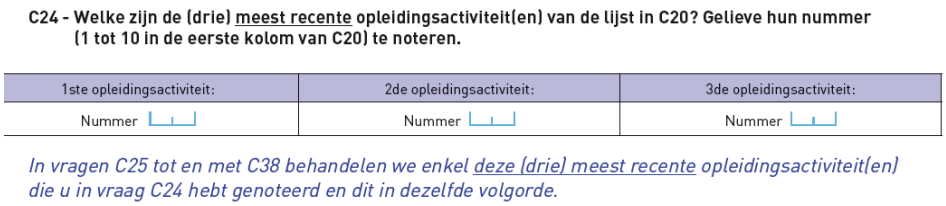
Figure 10: Mean number of hours in non-formal activities

We observe that the 1st activity typically was the longest of the three activities for which we have information. However, the AES-manual states that the information on duration should be collected for three 'randomly selected' activities. The fact that we do observe a clear pattern in the length of the different activities hence requires an explanation. It is possible that those participating in just one activity on average opted for a longer activity than those participating in more than one activity (e.g. because participants participating in two activities had to divide their time between both). However, even when we restrict the sample to the participants participating in two or more activities, the first activity was on average longer than the second (Table 11).

Table 11: Comparison of average length of 1st and 2nd non-formal activity

Country	2nd > 1st	2nd = 1st	2nd < 1st	2nd/1st
AT	23.44	26.43	50.13	81%
CZ	27.03	21.27	51.7	71%
DE	35.13	18.87	45.99	83%
DK	27.31	33.95	38.74	82%
EE	26.22	26.59	47.19	68%
ES	37.31	24.26	38.42	104%
FI	33.5	13.88	52.62	63%
FL	28.57	26.99	44.44	83%
FR	31.86	26.77	41.37	89%
IE	-	-	-	-
IT	32.81	26.22	40.97	81%
NO	33.23	25.18	41.59	87%
PL	27.99	31.42	40.59	81%
SE	32.7	17.67	49.63	74%
SK	27.56	21.25	51.18	59%
UK	-	-	-	-

Hence, the order in which activities have been reported seems to have been non-random (except in Spain). This can be due to the framing of the questions. For example, in the Belgian AES-questionnaire (paper version[11]), the respondent first had to list maximum ten activities (question C20). Next, he had to select from this list the three 'most recent' activities (question C24, Figure 11). Hence, it seems plausible that the most intense activity was named first in the list of 10 (memory effect), and that this order then was preserved when the three most recent activities had to be selected from this list. Another explanation might be that when selecting the 'three most recent' activities from the list of 10, the most recent activity was selected first; if more intensive activities also tend to be more recent (e.g. weekly activities), this would also increase the probability for the first selected activity to be the most intensive.



C24 - Welke zijn de (drie) meest recente opleidingsactiviteit(en) van de lijst in C20? Gelieve hun nummer (1 tot 10 in de eerste kolom van C20) te noteren.

1ste opleidingsactiviteit:	2de opleidingsactiviteit:	3de opleidingsactiviteit:
Nummer	Nummer	Nummer

In vragen C25 tot en met C38 behandelen we enkel deze (drie) meest recente opleidingsactiviteit(en) die u in vraag C24 hebt genoteerd en dit in dezelfde volgorde.

Figure 11: Question C24 from the Flemish AES-questionnaire

5.2.2.2.3 *Intensity per non-formal participant*

Next, we calculated the mean participation per participant by adding up the reported number of hours for all (maximum three) activities. However, we do not have data for all activities in which respondents participated, i.e. neither for the 4th or higher order activities nor for the 2nd or 3rd activities in the countries with missing data. This is a problem to the extent that activities are not selected at random: we cannot simply impute them with the mean of all non-formal activities in the country as the average length may differ according to the order of the activity (e.g. the activities that were referred to as the second activity are on average shorter). Hence, we will impute the missing data for the first three activities as the mean value of an activity of this order (1, 2, 3) among all participants with a similar number of activities in each country; e.g. for a Flemish respondent participating in 2 activities the missing number of hours for his 2nd activity will be calculated as the mean value of the 2nd activity for Flemish respondents participating in exactly 2 activities. For the country-level missing data (number of hours in the 2nd and 3rd activity in Ireland and the UK and in the 3rd activity in Germany, Spain, Norway and Italy) we will estimate the mean number of hours in a similar activity by multiplying the mean number of hours in the 1st activity by 0.8, which is about the average ratio observed in the data of the other countries; see Table 11). We will neglect the number of hours invested in the 4th or next activities, as we do not have any indication of their expected value. Hence, this underestimates the number of hours invested in non-formal education. However, we assume this underestimation to be acceptably small as (1) only a small segment of the population participated in more than three activities, (2) the 4th and next activities are probably the smallest due to the non-random selection of activities (see above).

[11] In the online survey, by contrast, selection was randomised automatically. In the try-out for the paper survey, attempts have been made to (semi-)randomise the selection of activities, either by mentioning this explicitly or by predescribing which numbers of activities should be picked by the respondent (e.g. 'if you have mentioned 7 activities, then choose numbers 3, 2 and 5'; 'if you have mentioned 8 activities, then choose numbers 5, 8 and 4' etc.) However, the try-out demonstrated that both options were too cognitive demanding for the respondents.

Figure 12 then shows that the average non-formal participant invests between 50 and 100 hours a year in non-formal training. This is considerably less than the average number of hours reported by a participant in formal education, which is usually between 150 and 300 hours (see above). There are again large discrepancies in the average number of hours per participant across countries. Spain, the UK, Poland, Germany and Austria are at the higher end of the spectrum, while Flanders and the Slovak and Czech Republic are at the lower end.

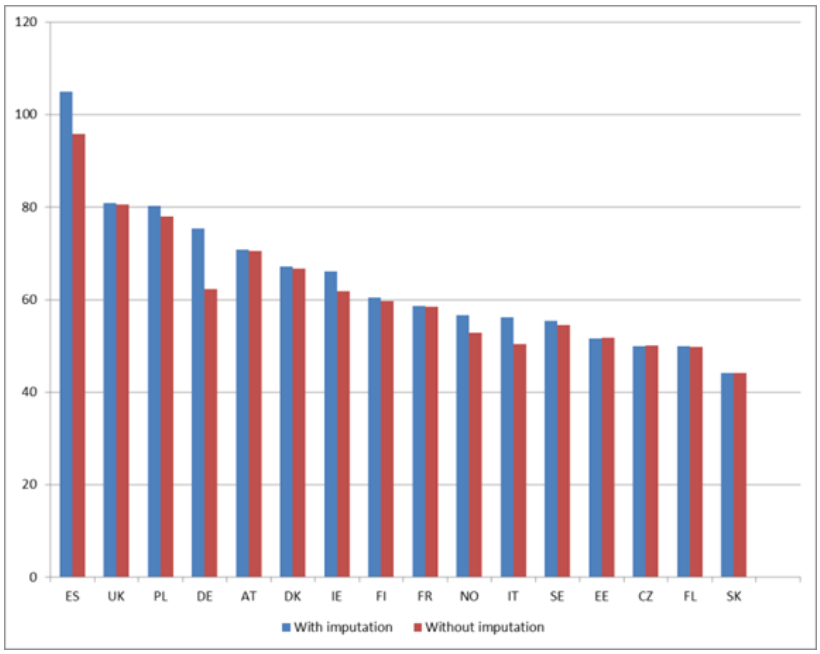


Figure 12: Average number of training hours per non-formal participant

An assessment of the reliability of these figures can be made by comparing the number of hours per participant reported in the AES with the number of hours reported per participant in the LFS and PIAAC. We could not use LFS-data for the UK (which has a missing data share of more than 75%). Figure 13 shows that the average intensity per participant corresponds reasonably well across all datasets, except for France (blue dot), which reported an unusual high average number of hours per month in the LFS. Excluding France, the correlation is 0.84 (LFS-AES) resp. 0.81 (PIAAC-AES). All three surveys confirm the unusual position of Spain with a high average number of hours per non-formal participant (when we exclude this leverage point from the analysis, the correlation coefficients drop to 0.61 resp. 0.60.)

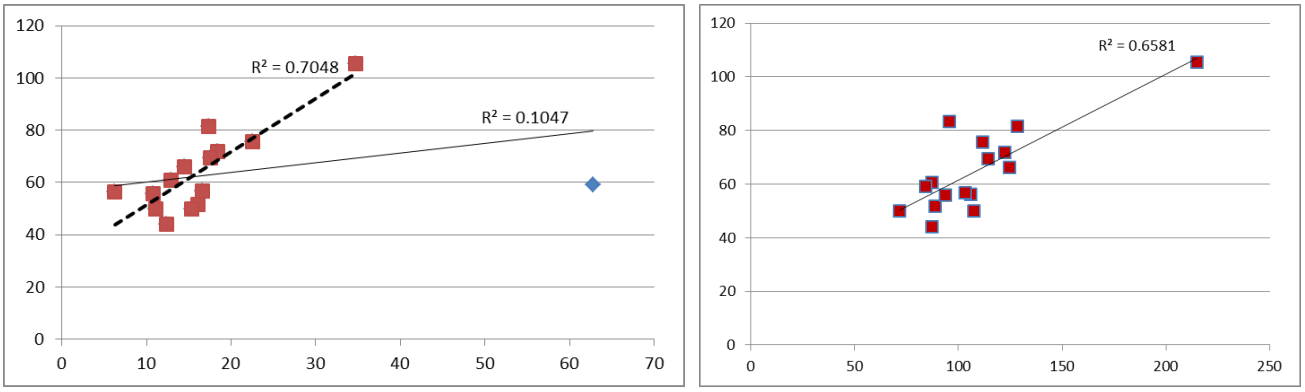


Figure 13: Reported number of hours in the AES (vertical), LFS (left, horizontal) and PIAAC (right, horizontal)

Vertical: AES, horizontal: LFS (left) resp. PIAAC (right)

Further, note that while the correlations between surveys were satisfactory, the *absolute* number of hours differed. That the average number of hours is smaller in the LFS than in the AES can be explained by differences in the reference period: the LFS-question only asks about the numbers of hours spend in LLL in the preceding month, while the AES asks about the participation in (maximum three) activities during the preceding year.

Interestingly, however, the figures in PIAAC are much larger than in the AES (with the same reference period). Possible explanations include:

- Differences in the formulation of the questions: whereas the AES reports the number of hours in each (of three) activities separately (and then sums these), PIAAC asks respondents directly about the total number of hours in *all activities together*. This may lead to different estimates.

- Differences in the units used to report participation: in PIAAC respondents could choose between hours, days or weeks (which were then converted in hours later on). This may result in overestimated real participation when reporting only a rough estimate in terms of weeks. If we restrict the sample to respondents reporting hours, the difference with the figures from the AES indeed disappear (and is even reversed), though we cannot know whether the choice for a certain unit was random (as respondents with more intensive participation probably opted more for the day or week unit).

- Differences in top-coding practices: in PIAAC the number of hours - for all activities together -was top-coded at 1920 in all countries. This may have led to a higher or a lower 'floor' for the reported number of hours than with the top-coding at 999 hours - per activity - in the AES (e.g. when there was only one activity, the floor was higher in PIAAC, when there were three, the floor may have been higher in the AES).

5.2.2.2.4 *Is there a trade-off between formal and non-formal participation?*

Given the relative arbitrariness of the definition of formal and non-formal education, cross-national differences in the average intensity of participation could be related to differences in the classification of activities: the most extensive non-formal activities reported in some countries may have been classified as formal in other.

However, when we compare the average intensity of formal and non-formal participants (Table 14), there does not seem to be any systematic pattern across countries. Some countries report both a medium or high intensity in formal and non-formal education (Germany, Spain), while others report a low intensity in both (Flanders, Slovak Republic).

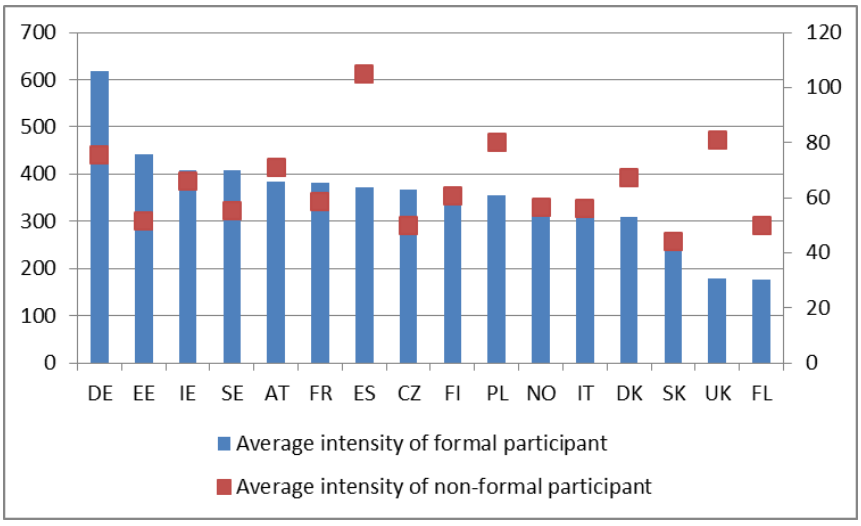


Figure 14: Average intensity per formal / non-formal participant in the AES

5.2.2.3 Full intensity

We will now summarise the mean number of hours in training for the full population, for both types of LLL together.

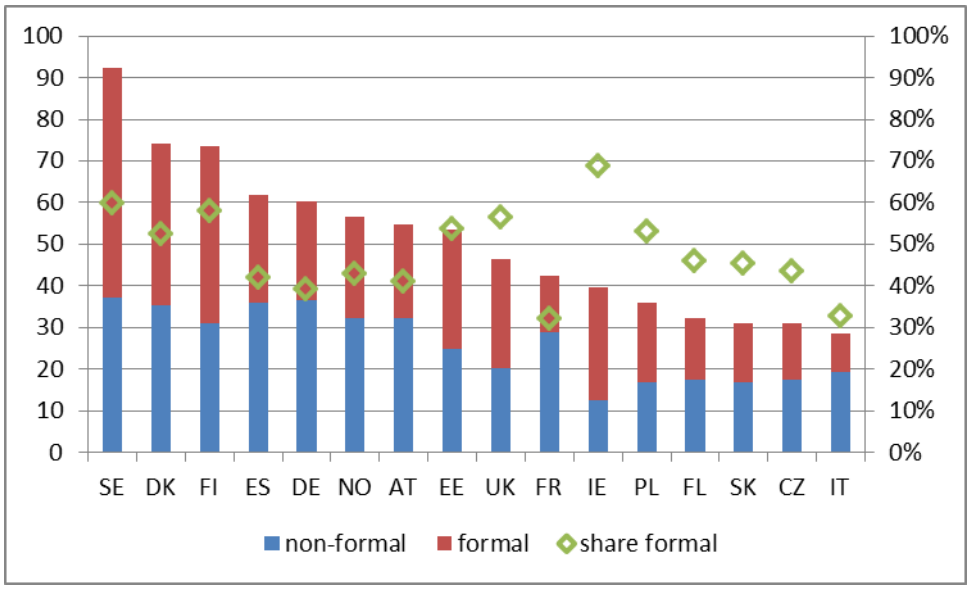


Figure 15: Full intensity of LLL participation in the AES

Figure 15 shows that in terms of hours invested, formal education becomes more important: in many countries, it accounts for more than 50% of the LLL hours each year. This is in clear contrast with the relative participation *rates* as discussed in the preceding paragraph, where we found that non-formal participation was dominant (by a factor 2 to 14 depending on the country). Indeed, while formal education is less widespread, it is on average far more intense, which re-balances the overall intensity between both types. For example, in Flanders the participation rate in formal education was 8% and in non-formal 35% (see 5.2.1), but the average intensity was 180 hours for formal (5.2.2.1) and 50 for non-formal (5.2.2.2) - hence, in sum, the intensity is more or less equally divided between both.

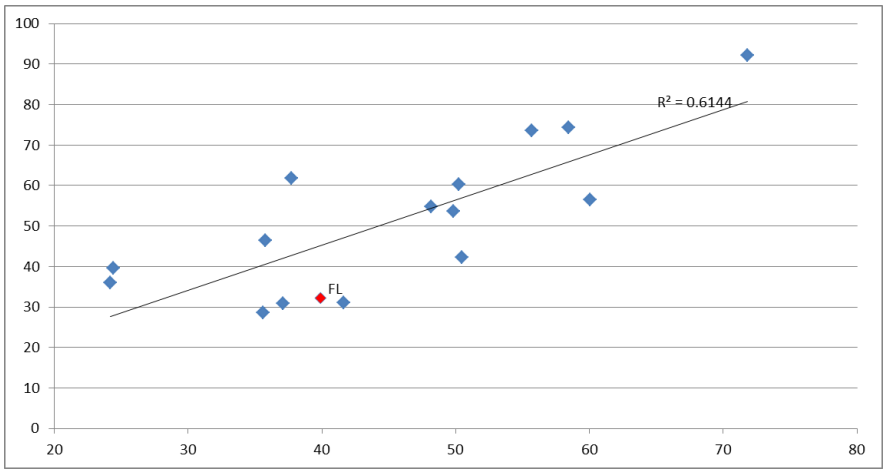


Figure 16: Relationship between participation rates (horizontal) and the total number of hours invested in LLL (vertical)

Secondly, Figure 16 shows that the relationship between participation rates and the total number of hours invested in LLL is far from linear. There are two main factors driving deviations from a linear relationship; first, the country-specific balance between formal and non-formal LLL (as the former is on average far more intensive), and second, the country-specific average intensity of participation in both formal and non-formal LLL. Hence, it makes a difference whether to consider LLL performance in terms of participation rates or in terms of hours invested. For example, while Spain and Flanders both scored mediocre in terms of the overall participation rate (4.1), the former scores relatively high and the latter relatively low in terms of hours invested.

5.2.3 Conclusion

The wide variation in the typical duration of LLL activities across countries means that simply comparing participation rates – i.e. counting every participant as equal – may be misleading. This influences both the ranking of countries and the relative weight of formal education (compared to non-formal activities).

Unfortunately, most surveys contain relatively little information on the invested number of hours: only the AES contains information on the formal participation hours, but it then limits information on non-formal participation to three activities. Moreover, in most countries these activities do not seem to have been 'randomly selected', in contrast to the claims of the variable description. Finally, the discrepancies (in absolute terms) between surveys (AES and PIAAC) suggest that the framing of the questions could be very important in order to arrive at sensible indications on participation intensity.

5.3 Does LLL have a similar content everywhere?

In the same vein as the former paragraph, we could consider more into detail if the LLL-container is covering similar activities in different countries. Both the AES and the LFS contain information on the level and field of LLL[12].

5.3.1 Formal education

5.3.1.1 Formal education and the upgrading of qualifications

As formal education is embedded within the regular educational system, it would seem plausible to approach it as merely performing a second-chance or compensatory function (cf. Van Damme (1996)), i.e. offering courses to obtain a higher degree than one currently possesses, mainly targeted at those still lacking a primary or secondary degree (Basic Education or Second-Chance Education). This view does not correspond with what is reported in the LFS and AES.

First, Figure 17 illustrates that formal adult education is concentrated at the tertiary level. In some countries, over 80-90% of formal LLL is at the tertiary level. The Flemish pattern stands out from this general observation (together with the UK and, to a lesser extent, Sweden and the Netherlands), with formal education being targeted more at the secondary level. Note that part of the observed effect can be explained by the high share of young 'regular' students in a number of countries (see next paragraph), but limiting the sample to those aged 35 and above does not alter the general observation.

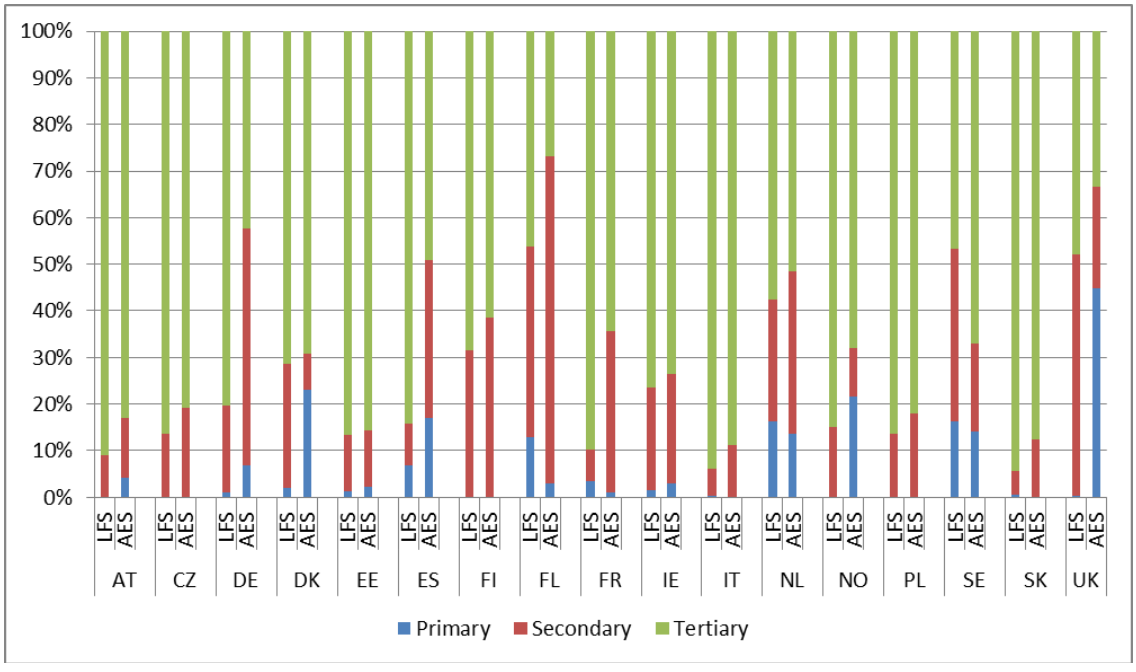


Figure 17: Level of formal LLL activity (LFS)

[12] PIAAC has relatively little detail on the field of education (only 10 broad options) and a sizeable number of missing data for this variable, so we will not use it in this section.

Secondly, even participation at the primary or secondary level is often not aimed at upgrading educational attainment. We can illustrate this for the Flemish Region by comparing the level of the formal courses with the initial level of education of the participants (Table 12). (The initial level of education of respondents who achieved their highest degree during the preceding year was set to be one level lower than the level reported as their highest level of education.) The table shows that relatively few respondents participated in a course at a *higher* level than their initial level of education (green values). Only about 20-25% of the respondents which engaged in formal education did this to achieve a higher level of education than their current one. This underlines that what is understood as formal education is far more diverse than just 'compensatory' education, i.e. programmes to achieve a higher degree than the one currently possessed (e.g. Basic Education or Second-Chance Education). Instead, formal education is mostly taken at the same level as the initial education (black values). A sizeable share of the respondents (25-30%) even reported to have participated in courses *beneath* their initial level of education.

Table 12: Initial level of education and level of the formal course

		LFS - Level of formal course			AES - Level of formal course		
Initial level		1-LOW	2-MED	3-HIG	1-LOW	2-MED	3-HIG
	1-LOW	4.2	7.4	1.2	2.6	14.8	1.3
	2-MED	3.8	16.8	18.9	0.0	25.3	11.9
	3-HIG	5.0	16.6	26.2	0.3	30.2	13.7
	Total	13.0	40.7	46.3	2.9	70.3	26.8

5.3.1.2 Field of education

For programmes at the ISCED3-level or above, both the LFS and the AES contain information on the field of study, according to a standardised Eurostat-classification. The AES has the most detailed information on the field of study (2 digits, 3 digits in some countries[13]; whereas in the LFS, most fields are coded at 1 digit-level) and less missing data (only for NL; whereas in the LFS, data are missing for NL, CZ, DE, FI, NO and SE) and will hence be our preferred source.

5.3.1.2.1 Flemish pattern

Figure 18 starts with the main fields covered by the Flemish formal adult education. First, the results for the AES demonstrate that three relatively 'atypical' formal courses are high on the list, accounting together for more than one third of all formal education:

- foreign language courses (which cover both NT2- and other language courses);
- computer training (aimed at mastering specific applications (e.g. Excel-courses), more fundamental classes in informatics are classified separately);
- arts (e.g. music, crafts, …).

For the LFS, the picture is somewhat different: in particular the language courses and the computer trainings are less dominant, while a category of 'general programmes' occupies a sizeable share of formal education.

[13] To enable comparisons, we reduced all data to 2 digits (e.g. '143 - Training for pre-school teachers' was brought down to '140 - Teacher training and education science').

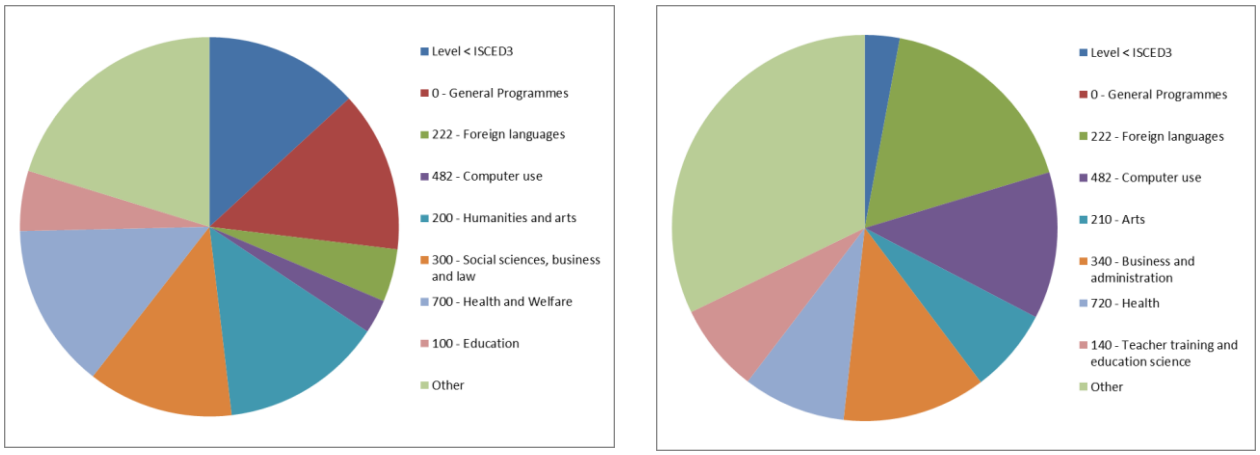


Figure 18: Field of formal education (right: LFS, left: AES)

From the coding manuals, the difference between the AES and the LFS regarding language and computer courses can be reconstructed as follows. First, all language and computer courses organised by an institution for adult education, such as a CVO, were considered formal courses. Secondly, in the LFS these courses were coded as 'lower secondary' or as 'general secondary education' (depending on the level), both without further field information; in the AES, these courses were classified according to their field (222 or 482) (Table 13). Hence, the participants in language or computer courses are absorbed in the 'lower level' and 'general' fields in the LFS, which explains why we observed a different pattern in Figure 18.

Table 13: Coding of level and field for language and computer courses

Field	Level	Level/field LFS	Level/field AES
Language	'Richtgraad' 1	Lower than ISCED3	ISCED3, 222
	'Richtgraad' 2-4	ISCED3, 0 - General	ISCED3, 222
Computer	Beginner	Lower than ISCED3	ISCED3, 482
	Advanced (incl. software use, e.g. Excel)	ISCED3, 0 - General	ISCED3, 482

5.3.1.2.2 International pattern

Table 14 lists for each country the main fields of formal education reported in the AES. In all but three countries (Spain, Flanders, UK) the pattern looks remarkably similar[14]: Business (340) and Health (700) courses are dominant. By contrast, Spain and Flanders stand out with high proportions of participants in language training (220). Moreover, Flanders also reports the highest shares of participants in arts (210) and computer use (480). Hence, the pattern we observed in the previous paragraphs, where we discussed the high shares of participants in 'atypical' formal courses, seems to

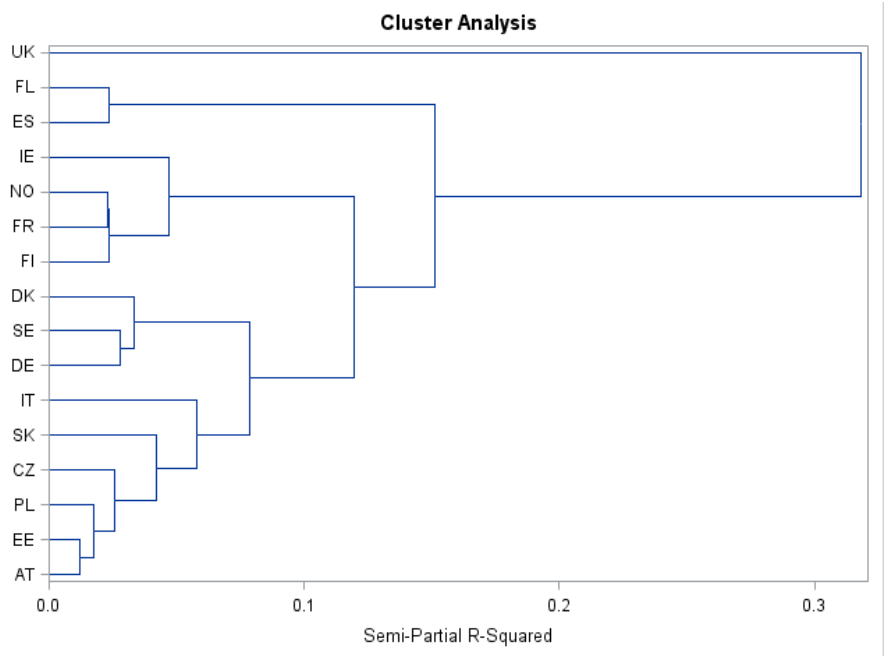
[14] Note that small differences between countries may have to do with differences in the precise demarcation of fields, which are inevitable when classifying programmes from different countries within one standardised framework, notwithstanding the efforts to streamline national translations of the international nomenclature. For example, a course preparing for working with children below school age (<6 year) can be classified as 'Training for pre-school teachers' under field 140 in one country and as 'Child care' under field 760 in another. Similarly, business-related programmes could be classified both under 'Economy' (field 310) and 'Business' (field 340).

be a rather unique feature of Flemish formal education participation. The UK stands out as well because its high emphasis on 'low level' courses.

Table 14: Fields of formal education (AES)

	AT	CZ	DK	EE	IT	PL	SK	DE	DK	SE	FI	FR	NO	IE		ES	FL		UK
140 - Teacher training and education science	10	13	13	7	6	12	16	10	13	8	4	4	9	5		4	7		8
210 - Arts	5	3	2	5	3	2	2	3	2	3	7	2	3	5		4	**7**		2
220 – Humanities (incl. languages)	11	4	8	8	12	7	12	7	8	9	5	6	6	5		25	**20**		3
310 - Social and behavioural science (incl. economics, civic skills)	9	15	5	13	22	9	9	6	5	8	7	5	8	5		4	4		4
340 - Business and administration (incl. management, administration	12	17	10	13	10	19	14	17	10	12	16	18	22	25		8	12		9
480 - Computing	6	3	3	5	0	5	2	4	3	5	4	1	3	9		4	**13**		2
520 - Engineering and eng. trades	7	10	5	5	8	6	7	14	5	5	9	6	7	6		5	5		3
720 – Health (incl. nursing, child care, elderly care)	9	9	14	7	11	9	9	9	14	13	14	24	21	8		12	9		11
Lower than secondary	2	0	6	2	0	0	0	7	6	14	0	1	1	4		7	3		38
Other	30	25	35	35	27	30	29	23	35	24	36	34	22	28		26	20		19

These observations can also be assessed quantitatively by performing a hierarchical cluster analysis on the participation patterns, in which countries are groups in separate clusters on the basis of their 'resemblance' in the fields reported by participants. The UK, Spain and Flanders indeed seem to stand out from the other countries.



Similar patterns can be observed in the LFS (as explained above, the Flemish language and computer courses are now diluted among the 'general' courses and the 'lower than secondary' courses) (Table 15).

Table 15: Fields of formal education (LFS)

	AT	DK	EE	ES	FL	FR	IE	IT	NL	PL	SK	UK
0 - General Programmes	1	5	3	3	14	0	4	1	1	6	0	2
100 - Education	11	9	7	7	5	2	5	5	9	11	13	11
200 - Humanities and arts	10	7	12	10	14	10	10	12	6	6	4	10
222 - Foreign languages	4	3	3	2	5	3	1	4	1	4	2	1
300 - Social sciences, business and law	32	25	30	25	12	37	32	36	29	37	30	29
482 - Computer use	0	0	1	0	3	0	4	0	0	0	1	1
500 - Engineering, manufacturing and construction	16	11	14	13	9	7	10	14	8	10	12	8
700 - Health and Welfare	12	24	9	15	14	21	17	13	19	9	22	25
Lower than secondary	0	2	1	7	13	3	2	0	17	0	0	0

In sum, the fact that formal education in Flanders is relatively more focused on languages, computer use and arts, compared to other countries, may help to understand some of the remarkable patterns we observed above.

First, as such courses were classified at primary or secondary levels, it helps to explains why a relatively large share of participants reported courses at these levels (Figure 12).

Secondly, it helps to explain the pattern observed in Table 12, where respondents reported to participate in programmes *below* their initial level of education. This seems to be due to the merging of different hierarchical structures (e.g. the common ISCED-scale, together with the '*richtgraden*'-structure of language courses) into one standardised ladder (e.g. a tertiary graduate starting to learn a new foreign language in evening class will be classified as engaging in a formal course at the primary level).

Finally, the overrepresentation of atypical courses may also explain why Flemish participants reported a relatively low number of hours in formal education. Figure 8 demonstrated an average of 180 hours per participant in Flanders; when we differentiate between fields, this average in fact reflects an average 100 hours per participant in atypical courses, while it is almost double as large for participants in other fields. Hence, when these atypical courses would not have been registered so massively in Flanders, the average number of hours would have been more in line with the international average.

5.3.2 Non-formal education

The AES also provides the most detailed information on the field of non-formal education, albeit with missing data for Ireland; the LFS has missing data for CZ, DK, FI, IE, NO, SE.

The dominant fields are again Business, Health and Computing. In contrast to the findings above the patterns are relatively similar in all countries, incl. Flanders[15].

Table 16: Fields of non-formal education

	AT	CZ	DE	DK	EE	ES	FI	FL	FR	IT	NL	NO	PL	SE	SK	UK
140 - Teacher training and education science	5	3	3	8	5	3	4	1	3	2	3	4	10	5	4	7
210 - Arts	5	3	4	1	4	4	8	4	6	7	5	3	1	4	1	8
220 - Humanities (incl. languages)	8	17	7	3	6	10	7	4	4	6	3	3	9	3	9	5
340 - Business and administration	17	14	23	7	29	14	21	25	17	13	21	23	14	23	13	24
480 - Computing	11	11	11	12	8	13	9	15	9	5	12	11	9	11	9	5
720 - Health (nursing and caring)	12	10	16	10	9	10	11	12	8	9	12	16	9	11	8	15
810 - Personal services (incl. sports)	7	3	5	1	5	4	7	2	14	14	4	7	3	6	4	7
860 - Security services (incl. safety in the workplace)	4	4	8	2	5	10	9	9	11	10	6	4	11	7	18	3
90 - Personal skills (incl. presentation, argumentation)	8	2	3	21	4	3	2	6	5	2	12	4	7	3	4	6
Other	22	32	22	35	24	28	22	23	24	31	23	26	27	27	32	20

5.4 Is LLL really 'life-long' - or is it rather 'postponed'?

The concept of 'life-long learning' as 'all learning that takes place after a certain age' tends to isolate adult education from the rest of the educational system. This is problematic because in some way 'initial' and 'adult' education perform similar functions (though this does not mean that *all* functions of adult education could be performed equally well at the initial level). In this sense, a lower participation in LLL may point to an underperforming LLL sector as well as a very successful initial education system (see also below).

An example of such an ambiguity is the strict age boundary beyond which education is suddenly counted as LLL: e.g. the ET2020-objective defines LLL as learning by adults aged 25-65. However, in

[15] One of the peculiarities here is that Italy and France reported a relatively high share of participation in sports trainings. Expressed in hours, this amounts even to about 25-30% of all LLL hours in these countries. This could again have to do with the formulation of questions; e.g. in France, a separate formulation asked explicitly about sport activities (http://www.insee.fr/fr/methodes/sources/pdf/Questionnaire_collecte_2012.pdf).

some countries a large proportion of the (first-time) graduates from tertiary education is already older than 25 (OECD (2014)). In the Scandinavian countries, for example, many upper secondary graduates have to wait for a rather long period before they obtain a place at university, and when they do so, the average duration of studies is relatively long; the *average* graduation age there is above 25. By contrast, in Flanders the average graduation age is barely 21 - and few students graduate at ages older than 25.

A late graduation age may thus 'artificially' increase the LLL-participation rate in a country, while it is not considered very desirable (as staying longer in the school system implies additional costs (e.g. higher expenditure per student and foregone tax revenue); indeed countries with late graduation ages have been implementing strategies to reduce it). Hence, to what extent adult education should be seen as 'postponed (tertiary) initial education'?

Figure 20 decomposes the full participation rate (all types) over the different age cohorts. First, we see that in many countries, those aged less than 30 indeed make up the bulk of formal education participants (approx. 50% of all participants in most countries). This indeed suggests that what is reported as 'lifelong' learning is to a large extent capturing 'postponed' learning instead. Flanders reports a relatively low weight of youngsters in the LLL population, reflecting its relative young graduation age; this qualifies the relatively modest Flemish LLL performance. On the other hand, while the Nordics do have a sizeable share of the respondents aged less than 30 years engaged in initial tertiary rather than genuine adult education, this does not really affect their superior position in terms of the total participation rate, as older cohorts also participate intensively. In fact, the *relative* share of young students in the total LLL participation rate is rather small in these countries.

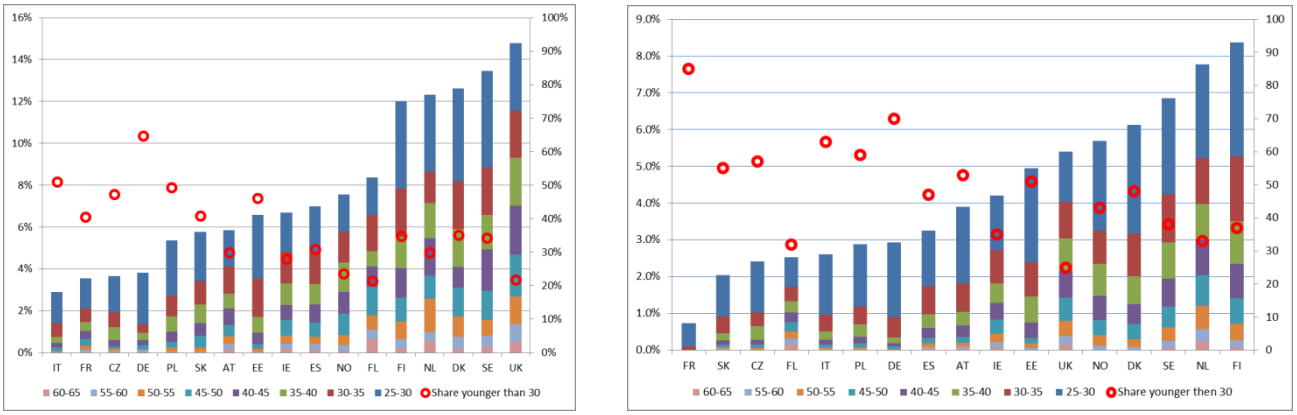


Figure 19: Age of LLL participants (left: AES, right: LFS)

5.5 Migrants and LLL

Another qualification is needed in comparing overall participation rates across countries. The heterogeneity of LLL implies that some forms of LLL cater for a very specific target population. An example of this is language training targeted at newly arrived migrants (who do not speak the language of the country of arrival). In some countries, participation (which is mostly organised by official institutions and hence classified as formal LLL) is compulsory or at least strongly encouraged. This may explain differences in participation rates, in particular those of the lower educated. Hence, countries with a sudden influx of lower educated migrants would see their 'lifelong learning' figures increase (Hefler, Ringler, Rammel & Markowitsch (2010)).

Both the LFS and the AES contain information on the country of birth and the years of residence in the current country of residence, with the most detailed information being available in the LFS (moreover, the number of cases in the AES is often too small to make detailed analyses).

5.5.1 Flemish pattern

Table 17 shows that in Flanders, respondents born outside the country are overrepresented in formal education, though only when they moved into the country recently. Moreover, the type of formal education depends on the immigration status. Foreign-origin adults participated far more often in programmes below the secondary level (and in courses oriented at business and administration). Although we do not have specific information on the lower-than-secondary-level courses, it can be suspected that these are mainly language courses. Note that the impact on the overall participation rate in Flanders is substantial: of all formal education participants in the LFS, more than 16% are newly arrived migrants – while this group constitutes only 6.4% of the sample.

Table 17: Migrants in formal LLL (Flanders)

LFS	Native	Immigrated < 10 y	Immigrated > 10 y
% of sample	89%	6%	5%
Participation rate (month)	2,3%	6,4%	2,2%
Top fields - %	*Humanities and Arts - 14,6*	*Lower than secondary - 29,3*	*Business - 23,9*
	Health - 14,5	*Business - 12,8*	*Lower than secondary - 17,4*
	General - 13,8	*General - 11,8*	*General - 14,5*

AES	Native	Immigrated < 10 y	Immigrated > 10 y
% of sample	93%	3,4%	3,4%
Participation rate (year)	7,9%	16,5%	9,7%

5.5.2 International pattern

Table 18 shows that also in other Continental and Nordic countries, newly arrived migrants participate more in formal LLL than native respondents (the odds ratio, i.e. the migrant participation rate divided by the native participation rate, is over 1). By contrast, in most Central- and Eastern European and Southern countries, migrants do not participate more in LLL than natives. Furthermore, note that migrants who have been in the country for a longer time do not participate more in LLL then natives in any country, on the contrary.

The final columns indicate how much the formal education participation figure is influenced by migrants. Apparently, in some countries migrants have a major share among the formal education participants, even when they only constitute a minor part of the sample, e.g. in Sweden (26% of all formal education participants), the UK (20%), France (18%) and Flanders (16%)[16]. If we limit the sample to lower-educated participants in formal education, the impact of migrants becomes even more prominent, though we can only accurately determine this share for a number of countries due to low cell sizes.

Table 18: Migrants in formal LLL

LFS		Share of sample		Participation rates		Participation Ratios		Share of formal participants		Share of formal part. among the low educated	
	Migr. < 10 y	Migr. > 10 y	Native	Migr. < 10 y	Migr. > 10 y	M<10y / Native	M>10y / Native	Migr. < 10 y	Migr. > 10 y	Migr. < 10 y	Migr. > 10 y
AT	5%	11%	3.8%	8.4%	2.5%	2.2	0.7	13.7%	8.2%		
CZ	1%	2%	2.4%	2.4%	2.1%	1.0	0.9	1.0%	1.9%		
DE	3%	13%	2.9%	6.2%	2.6%	2.2	0.9	7.0%	12.5%		
DK	3%	6%	5.5%	16.5%	6.7%	3.0	1.2	12.3%	8.9%	12.3%	16.6%
EE	0%	13%	5.6%	7.8%	0.8%	1.4	0.1	1.1%	2.2%		
ES	4%	5%	3.4%	3.3%	2.0%	1.0	0.6	10.1%	4.7%		
FI	2%	2%	8.1%	17.2%	13.4%	2.1	1.7	3.8%	4.1%		
FL	6%	5%	2.3%	6.4%	2.2%	2.8	0.9	16.2%	4.1%		
FR	3%	11%	0.6%	4.1%	0.4%	6.4	0.7	17.9%	6.4%		
IE	11%	7%	3.9%	6.0%	4.8%	1.5	1.2	15.9%	7.3%	15.9%	8.8%
IT	5%	7%	2.7%	1.5%	1.5%	0.6	0.6	3.1%	3.9%		
NL	1%	9%	7.1%	24.9%	9.1%	3.5	1.3	7.0%	14.3%	13.7%	25.8%
NO	5%	6%	5.3%	10.4%	6.9%	2.0	1.3	10.8%	7.9%		
PL	0%	0%	2.9%	10.3%	1.9%	3.6	0.7	0.3%	0.1%		
SE	5%	11%	5.4%	27.4%	5.3%	5.1	1.0	26.3%	9.9%	61.0%	12.2%
SK	0%	1%	2.0%	1.6%	1.4%	0.8	0.7	0.1%	0.4%		
UK	7%	8%	4.5%	13.8%	6.3%	3.1	1.4	20.2%	10.0%	21.3%	11.2%

[16] The results from the AES confirm this picture, with an overrepresentation of recent migrants in formal education in the Nordic and Continental countries but not in the Southern countries (in most Central-European countries, the number of recently arrived migrants is too low (<100) to ensure accuracy).

5.5.3 Non-formal LLL

In non-formal education, migrants are under- rather than overrepresented. Table 19 shows that the participation ratios are close to 1 in any case.

Table 19: Migrants in non-formal LLL

	Participation Ratios	
	M<10y / Native	M<10y / Native
AT	1.0	0.6
CZ	1.1	0.7
DE	0.7	0.6
DK	1.0	0.8
EE	1.6	0.6
ES	0.7	0.7
FI	0.8	0.7
FL	1.1	0.9
FR	1.1	0.7
IE	1.0	1.1
IT	0.5	0.6
NL	1.6	0.9
NO	0.8	0.9
PL	2.4	1.9
SE	0.6	0.8
SK	2.3	1.2
UK	1.3	1.0

5.6 Working life and LLL

One of the main functions of LLL is to keep the skills of the working age population up-to-date, in order to raise the productivity and performance of the economy (cf. 2.2). All three surveys contain indications whether purpose of the (most recent) learning activity was job-related, but in PIAAC the variable is missing for about half of the non-formal respondents and will be neglected. Table 20 shows that indeed a large segment of the LLL activities are job-related[17].

Table 20: Percentage of the most recent non-formal learning activities being job-related

Country	LFS	AES
AT	60	75
CZ		81
DE	88	82
DK		86
EE	83	81
ES	78	82
FI	81	74
FL	75	86
FR	87	81
IE		86
IT	68	69
NL	90	87
NO		96
PL	86	83
SE		78
SK	81	89
UK		82
Average	80	82

Given the importance of working life on LLL participation, in this paragraph we will focus on two issues:

- participation in LLL by unemployed individuals;
- impact of the job and firm characteristics on LLL participation by employed individuals.

[17] Desjardins, Milana & Rubenson (2006) argue that the difference between job-related and non-job-related LLL is in fact not always that clear, e.g. people learning how to use ICT-tools often do this both for use in their daily life and on the job.

5.6.1 Unemployed

Table 21 shows that in all countries, inactive respondents report the lowest participation rates, while the participation of unemployed respondents is higher than that of the employed in some countries, and lower in other.

Table 21: LLL participation among employed, unemployed and inactive respondents

	Share of population		Participation rate			Participation Ratio	
	Unemployed	Inactive	Employed	Unemployed	Inactive	Unemployed / employed	Inactive / employed
AT	2%	22%	14%	19%	10%	1.3	0.7
CZ	5%	23%	15%	7%	6%	0.4	0.4
DE	5%	18%	8%	6%	8%	0.8	1.0
DK	5%	15%	33%	35%	29%	1.1	0.9
EE	9%	18%	14%	9%	7%	0.6	0.5
ES	13%	23%	12%	15%	10%	1.3	0.9
FI	5%	20%	26%	18%	16%	0.7	0.6
FL	3%	24%	8%	11%	7%	1.4	0.8
FR	6%	24%	6%	6%	5%	0.9	0.8
IE	10%	25%	6%	7%	9%	1.1	1.5
IT	5%	34%	5%	5%	6%	1.0	1.1
NL	3%	17%	19%	19%	11%	1.0	0.6
NO	2%	15%	19%	18%	14%	1.0	0.8
PL	6%	31%	5%	5%	3%	0.9	0.5
SE	5%	13%	24%	41%	27%	1.7	1.1
SK	9%	25%	4%	2%	4%	0.4	0.9
UK	4%	22%	17%	13%	9%	0.8	0.5

In our next report we will combine additional information from both the LFS (information on job search, long-term vs. short-term unemployment …) and the AES (obstacles and incentives for unemployed participants) to further examine these patterns.

5.6.2 Job and firm characteristics

Among the employed, characteristics of both the job and the firm may influence LLL rates as well. For example, Sels (2009) showed that the international position of Belgium in rankings on job-related training participation improves drastically when the large share of small enterprises in Belgium is taken into account. Similarly, the sector of employment is a strong determinant of participation in training, with much higher rates in knowledge-intensive sectors such as ICT, finance, and banking (Van Damme (1996), Vanderbiesen en Djait (2009)).

The LFS contains information to validate these patterns. First, Table 21 shows that respondents working in large firms are indeed more likely to participate in training than respondents working in small firms. Note that the LFS records the size of the workplace rather than the firm. Workplace is an imperfect measure of firm size, because the firm may be substantially larger than the workplace.

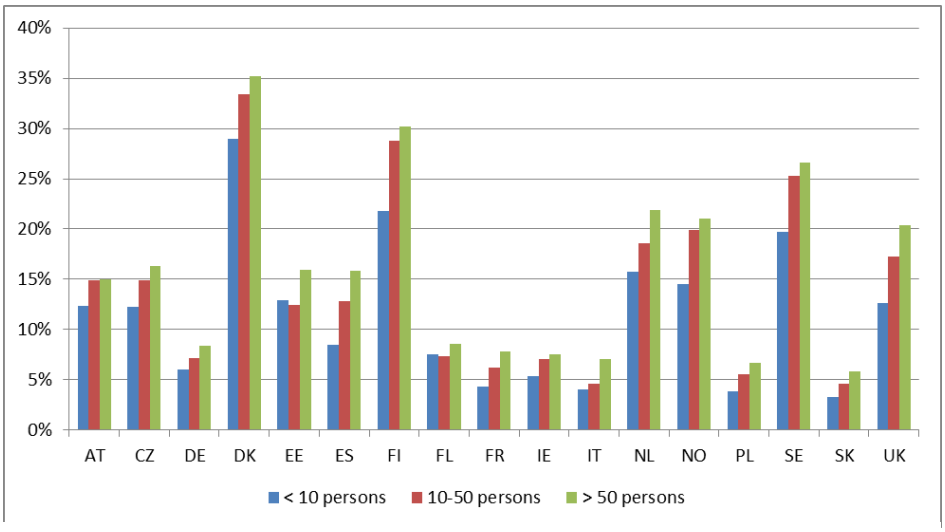


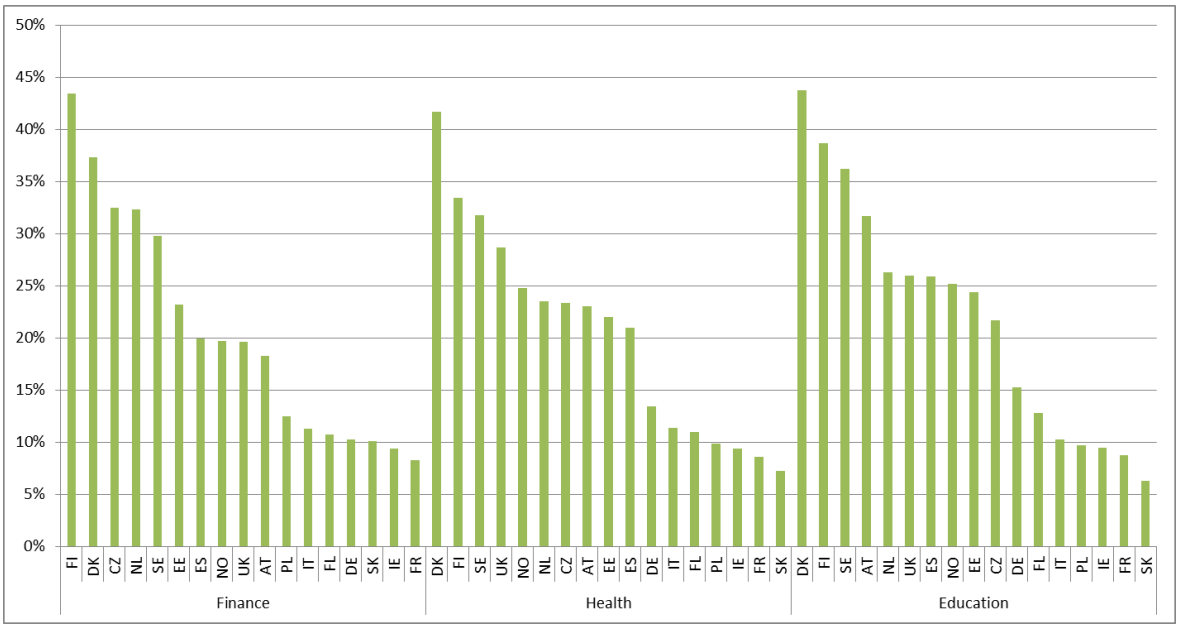
Figure 20: Job size and non-formal LLL participation

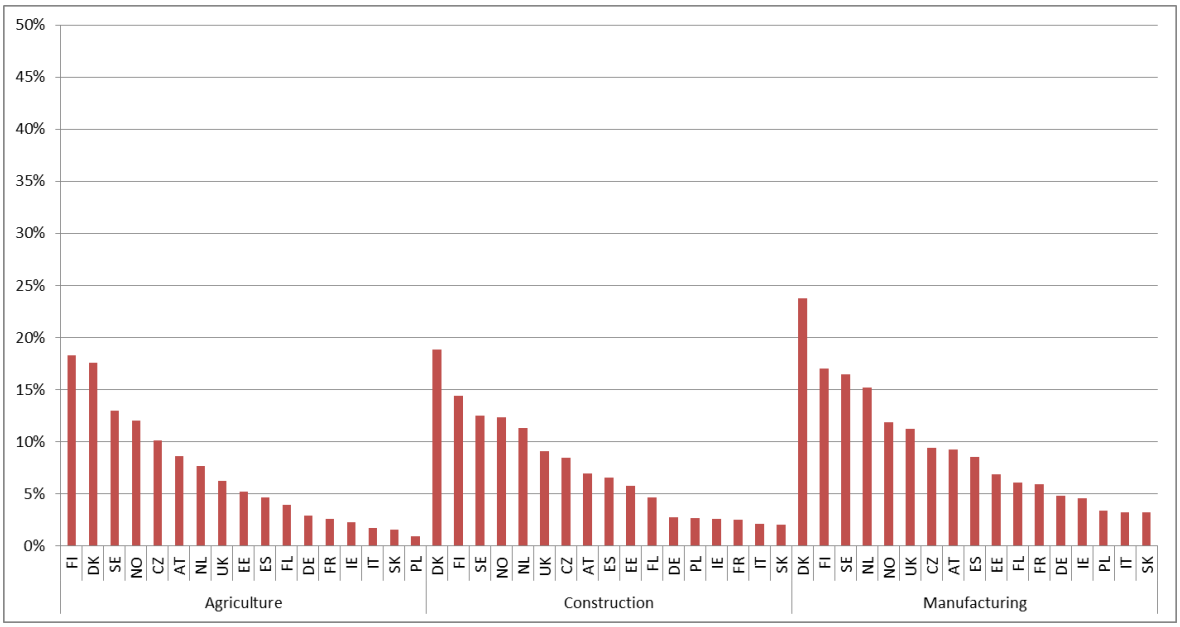
Secondly, results for the full sample indicate rather large gaps in LLL participation across sectors, with Education, Health Care, Finance and Technical (incl. ICT) sectors reporting larger participation, and Manufacturing, Construction and Agriculture lower figures.

Table 22: Sectors and LLL

NACE-sector	LLL	NACE-sector	LLL
Education	19%	Other Service Activities	10%
Human Health And Social Work Activities	18%	Mining And Quarrying	10%
Financial And Insurance Activities	15%	Water Supply; Sewerage, Waste Management And Remediation Activities	8%
Professional, Scientific And Technical Activities	15%	Administrative And Support Service Activities	8%
Public Administration And Defence; Compulsory Social Security	14%	Transportation And Storage	7%
Information And Communication	13%	Wholesale And Retail Trade	7%
Electricity, Gas, Steam And Air Conditioning Supply	13%	Manufacturing	7%
Arts, Entertainment And Recreation	13%	Construction	5%
Real Estate Activities	10%	Agriculture, Forestry And Fishing	3%

Figure 22 shows, for the sectors with the lowest and the highest participation rates, the country averaged rates. On one hand, the graph shows the importance of the sector: even in countries with overall low LLL participation rates, knowledge-intensive sectors record reasonable rates. On the other hand, in all sectors the overall ranking is more or less preserved, with e.g. the Nordics recording fairly high rates even in the least knowledge-intensive sectors.





Chapter 6 Lifelong learning: a means or an end?

6.1 Means and objectives

A fundamental remark towards the current international practice of benchmarking countries on the basis of their LLL participation rates is that this seems to confuse means with objectives (Boeren and Nicaise (2012); Sels (2002); Baert en Vanden Eynde (2014)). Promoting lifelong learning is a desirable policy, because it might increase productivity and innovation, strengthen social cohesion and/or enable personal development (see 2.2). But merely increasing the participation rate does not automatically imply a more productive, innovative or cohesive society: this would also have to take into account the *quality* of the LLL itself – a quality which we have very little information about.

A telling example of this possible confusion between means and objectives comes from a study on job-related training by Sels, Bollens & Buyens (2000) (see also Sels (2002)). Using both quantitative and qualitative information on training efforts of Flemish firms, it was shown that firms with an elaborate and ambitious training policy in fact reported a *lower* training participation rate than firms without such clear ambitions. The reason for this paradox was that firms with more ambitious training policies often developed better instruments to detect the training needs of their employees. They also constructed better mechanisms to evaluate the added value of training. Both instruments, which are clear signs of a balanced training policy, happened to *lower* the training participation in the firm: when needs are detected more accurately, unnecessary training (i.e. training the employees do not need) is not offered anymore, and when training is evaluated more precisely, inefficient training sessions (i.e. training that does not prove to add value) are avoided. Hence, both instruments *increase* the positive impact of training (better value for money), but they are only reflected in a negative way in objectives formulated in terms of participation rates (or, in this case, in terms of the amount of money spent on training).

These observations from the sphere of firm-related training can easily be translated to the country level: quality matters more than quantity. Consider for example the issue of 'second chance' education: a *low* participation in second-chance adult education could equally well be a sign of a *successful* initial educational system. Similarly, Sels, Bollens & Buyens (2000) argued that as most job-related training is delivered to new entrants training often seems to function as a 'lubricant' between the educational system and the labour market. Hence, the more the educational system succeeds in smoothening the link between school and job, the less 'lubricant' will be needed - and the lower the training participation rate. Hence, participation rates cannot be appreciated only by themselves. For example, Desmedt (2006) noted that a stronger stratification of the educational systems was associated with a lower LLL participation rates: was this due to stratification leading to negative attitudes regarding schooling (hence, less willingness to engage in LLL), or simply to stratification preparing students better for the labour market (hence, less need to engage in LLL)? This cannot be deduced from the LLL participation rates, but it will definitely influence how we appreciate the performance of the educational system as a whole.

6.2 Outcomes of LLL: digital skills of older respondents

A quantitative objective, such as a participation rate, can thus at best be a partial indicator of the dedication to and the positive impact of LLL. In this sense, PIAAC may offer some additional insight because it contains information on the desired *outcomes* - the observed skills of adults - as well. However, as explained above, cross-sectional data such as PIAAC do not allow to measure the effect on the individual level of participation in LLL on skills: a correlation between skills and participation could mean that participation in LLL increases skills, but it may also mean that the higher skilled participate more. On the country level, a link between the average skill level of the population and the average participation rate could be misleading; e.g., it has been shown that country rankings concerning numeracy and literacy skills levels in adulthood (PIAAC) reflect similar rankings for 15-year olds for PISA rather well: the quality of the initial education system thus seems to strongly influence the skills level of the adult population.

For these reasons, we will focus here on a specific type of skills labelled '*problem solving in technology-rich environments*', and we will pay special attention to the older part of the sample. The rationale is that, given their relatively recent development, older respondents have had no real opportunities to learn how to master 'digital' skills in their initial education (in contrast to numeracy or literacy skills). Hence, the 'digital' skill level of the older part of the population might be a possible indicator of the 'real' dedication to lifelong learning.

The AES will be of additional help because it contains information on Internet and computer use.

6.2.1 Digital skills in PIAAC

PIAAC provides two indicators of the digital skills of adults. In principle, the PIAAC test was administered on a computer. However, not all respondents could take the computer-based assessments (CBA); respondents who indicated to have insufficient computer experience, who did not pass a short ICT familiarity test, or adults who chose not to take the CBA took the test on paper. Hence, our first outcome indicator is the proportion of adults who have sufficient familiarity with computers to perform the CBA. Secondly, in all countries except France, Spain and Italy, this group was administered a test regarding their problem solving skills in technology-rich environments, which were defined as '*using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. It represents the intersection of what are sometimes described as computer literacy skills (i.e. the capacity to use ICT tools and applications) and the cognitive skills required to solve problems*' (PIAAC Expert Group (2009)).

Regarding the percentages of respondents indicating to have enough familiarity with using a computer, Figure 23 shows a declining share with age in all countries. However, the trend is clearly not equally steep everywhere. The countries are ordered as a function of their overall LLL participation rate, with the darkest lines representing the countries with the highest rates. There thus indeed seems to be a certain correspondence between LLL participation and familiarity with digital devices among older respondents. However, not all countries fit the trend, e.g. Ireland and Estonia score worse than expected on the basis of LLL participation. Interestingly, the reverse is true for Flanders.

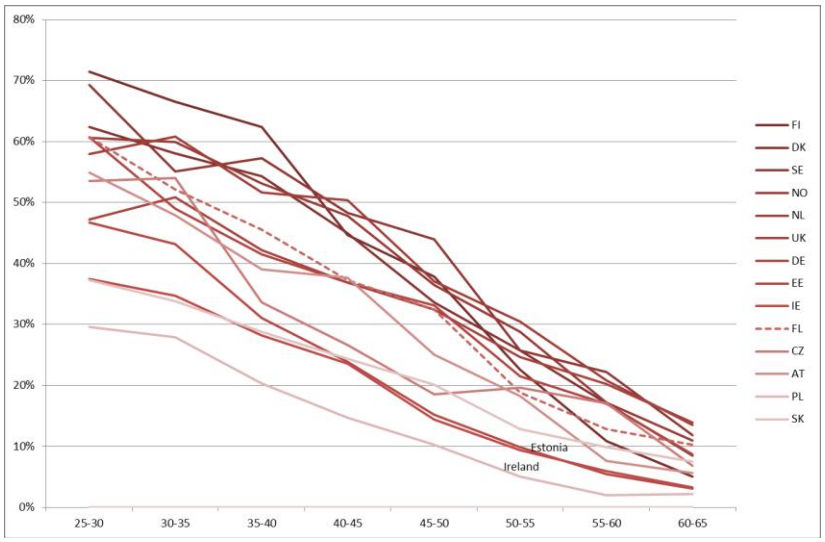


Figure 22: Percentages of respondents familiar with using a computer, as a function of age (brightness of curves inversely proportional to LLL participation rate)

Secondly, the percentage of respondents displaying good digital skills (problem solving in technology rich environments), i.e. those at or above level 2, which indicates that the respondent is able to use different functions of different applications to solve the problem, also diminishes with age. The same correspondence with dedication to LLL can be observed, although in this graph the trend lines seem to converge somewhat towards the end of the age spectrum. Hence, wherever high LLL participation seemed to succeed in raising familiarity with new technologies among older respondents, the success mostly seems to be confined to basic digital skills: even in countries with high LLL participation, a relatively small share of the older respondents also master more advanced digital skills.

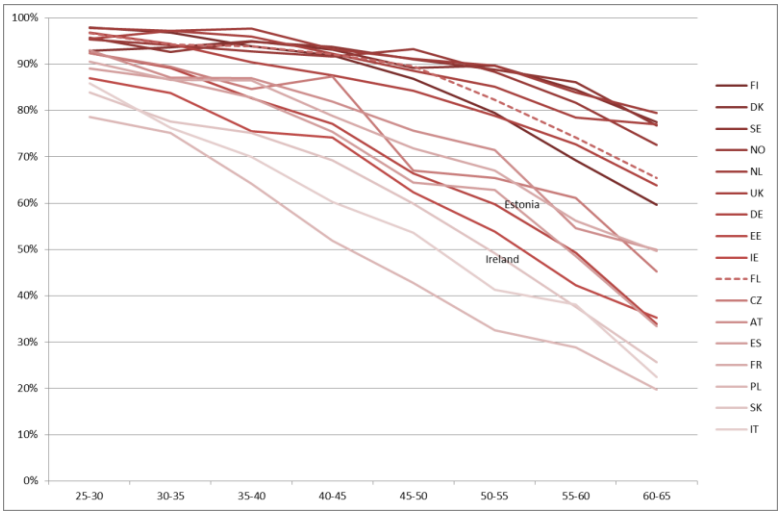


Figure 23: Percentage of respondents with good digital skills, as a function of age (brightness of curves inversely proportional to LLL participation rate)

Finally, note that in PIAAC *all* skills seem to decline with age (due to biological ageing and to lower educational attainment in earlier generations). Hence, given, that the observed skills were a mixture of ICT-related skills and cognitive skills, a strong age dependency was to be expected. Indeed, when we restrict our sample to respondents who scored high on the numerical tests (310 points or above), the higher-order digital skills seem to be of good quality later in life as well.

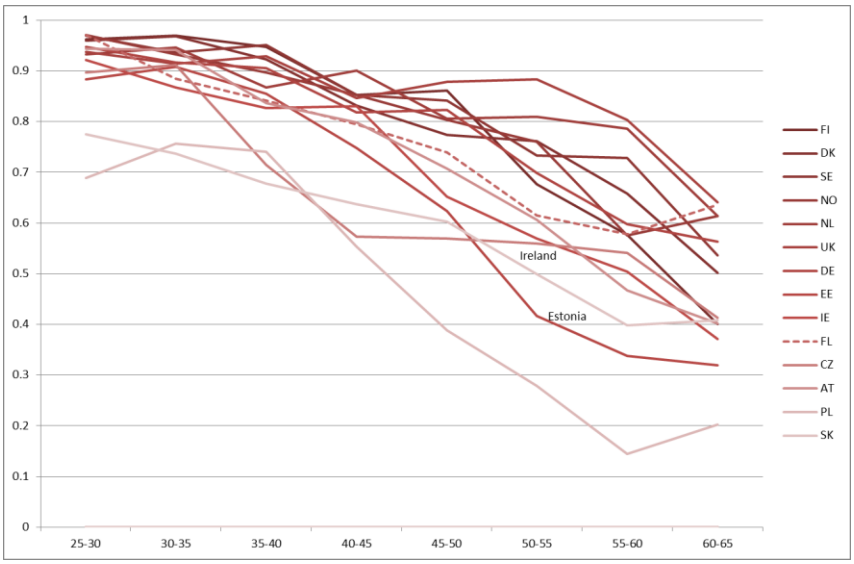


Figure 24: Percentage of those with good numerical skills that have good digital skills as well, as a function of age (brightness of curves inversely proportional to LLL participation rate)

6.2.2 Digital skills in the AES

Additionally, the AES contains information on self-reported computer and Internet skills. Examples of computer skills include 'copying or moving a file or folder', 'compressing or zipping files', 'transferring files between computer and other devices', 'creating electronic presentations with presentation software', and so on. Examples of Internet skills include 'using a search engine to find information', 'creating a web page', 'sending e-mails with attached files' or 'using the Internet to make telephone calls' and so on. Both variables thus restrict digital skills to pure ICT skills, i.e. without the problem solving component such as in PIAAC. The variables are missing or unreliable for the UK, Ireland and Spain, while Denmark, the Netherlands, Italy, Ireland and Norway only have information on computer skills.

Figure 26 show that on average, the number of skills mastered by the respondent (which had a maximum of 10 for the computer skills and 8 for the Internet skills) drops with age, but there seem to be relatively small differences across countries.

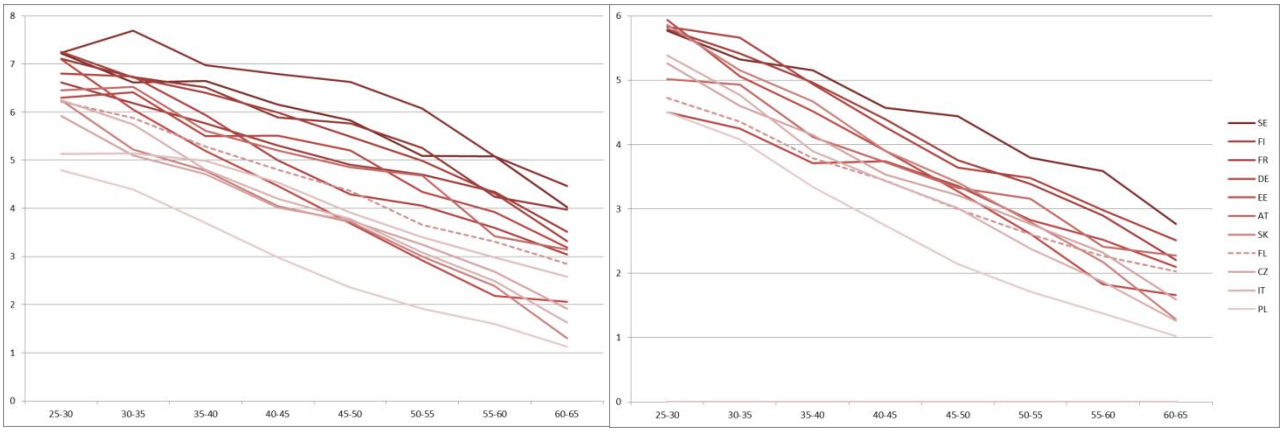


Figure 25: Average number of self-reported computer (left) and Internet (right) skills, as a function of age

However, when we consider the percentage of respondents which reported to have had at least one of the experiences with a computer, we find again that this basic familiarity is less decreasing with age in those countries with high LLL participation rates.

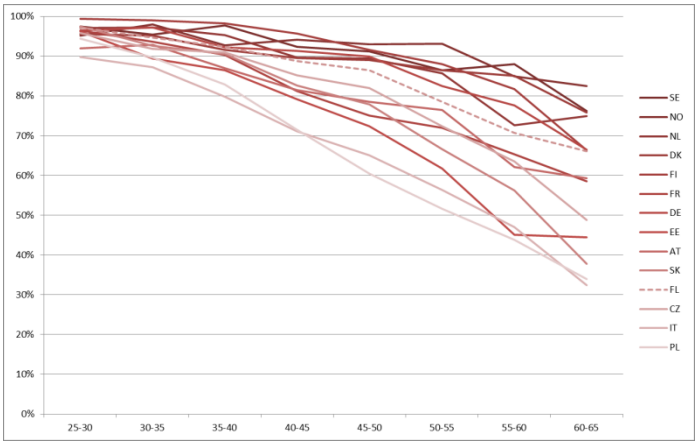


Figure 26: Percentage of respondents with a least a basic computer experience

Chapter 7 Conclusion

Under the objective of making the EU '*the most competitive and dynamic knowledge-based economy in the world*', life-long learning (LLL) has been at the centre of the European and Flemish policy discourse for more than a decade (e.g. Lisbon and Europe 2020strategy, Education & Training 2020, Pact 2020). A key benchmark has been to increase the rate of participation to 15% of the population every month. Despite the creation of new ambitious adult education policies (Bollens, Vanhoren & Baert (2004)), Flanders has not yet reached this target, with current participation rates stagnating around 7%.

In this report we considered three recent surveys (LFS, AES, PIAAC) covering participation in life-long learning across European and Western countries. Consistently across all surveys, the Scandinavian countries (together with the Netherlands) report the highest participation rates. Flanders is situated around the (lower) middle of the international ranking[18]. The observed patterns correspond to some extent to the educational regime and welfare state typologies we developed earlier in this research line (Lavrijsen, Nicaise, and Poesen-Vandeputte (2014)). This correspondence has mainly been explained by the argument that individual decisions about participation are made within a social context that limits the possible choices and that makes participation less or more attractive, accessible and/or advantageous: individuals are 'bounded' by the contexts in which they act (Rubenson en Desjardins (2009); Boeren, Nicaise & Baert (2010)). Welfare state design then influences motivations or barriers to participation (e.g. transitions in the life course, family responsibilities, employer support, enrolment costs etc.).The quality of the initial educational system itself matters as well, not only because the importance of foundational skills (such of literacy) in preparing graduates for LLL, but also because it influences their attitudes towards learning (Kyndt, Govaerts & Dochy (2014); Gorard en Smith (2004)). In our next report, we will develop this argument into greater detail, relying on the richness of the AES-dataset, which contains self-reported assessments of barriers inhibiting and incentives driving LLL participation.

Following these general observations, we examined the quality and comparability of the different survey data in detail. The following issues demonstrate that LLL still remains a somewhat ambiguous container concept, and hence that attention should be paid when interpreting participation data.

- The observed participation rates varied between the different data sources. This could be due to differences in the definition of variables and the formulation of questions, and/or to differences in the way the data have been collected (cf. non-response, self-selection).

- The average number of hours invested in LLL activities (as recorded in the AES) varied quite strongly across countries. In particular, Flanders stood out with a low average number of hours invested in LLL by the average participant, especially in formal education. Differences

[18] In contrast to the observations on the pilot of AES(2007), which reported a fairly high participation in *formal* LLL for Flanders (Nicaise (2014)), the Flemish position in the recent AES (2011) is mediocre both for formal and for non-formal LLL. An explanation might be that the earlier AES-wave had to deal with a high non-response and self-selection, which was reduced in the most recent wave.

in average intensity question the current practice of benchmarking countries solely on participation rates, assuming that each participant counts equally. Unfortunately, surveys usually contain incomplete information on the invested number of hours (in the AES, for example, information on hours in non-formal activities was limited to maximum three activities, and, in contrast to the claims in the variable description, these three activities do not seem to have been 'randomly selected'). Additional attention should be given to the collection of information on the number of hours invested in LLL.

- Analysis of the fields of study reported by the LLL participants revealed cross-country differences as well. In particular, formal education in Flanders seemed relatively focused on 'atypical' courses in languages, computer use and arts (i.e. focused on personal fulfillment rather than employability).

- International objectives define LLL as learning by individuals aged 25-65. However, in some countries a large proportion of the first-time graduates from tertiary education are already older than 25. In this sense, a high average graduation age artificially increases the performance of a country in international comparisons of LLL participation rates; the other way round, the Flemish mediocre position is partly due to its low average graduation age.

- Recently arrived migrants often make up for a large share of low-educated participants in formal education, possibly due to language courses, compulsory integration courses, etc.

- Characteristics of both the firm and the sector of employment influence LLL investment behaviour of employers, and this influence seems to be at least as important as the country-specific context.

Finally, we noted that there is a fundamental problem with evaluating a country's dedication to LLL by merely benchmarking its participation rate: such a 'means' objective can at best only be a partial indicator of LLL performance, as it lacks any information on the quality, the appropriateness and thus the desired outcomes of the learning activities. However, in internationally standardized surveys, information about outcomes is generally lacking. By way of 'first approximation', we performed a small evaluation of the correspondence between LLL participation rates and the extent to which older citizens of the country have learned to master 'new' digital skills. The results indicate that there seems to be some correspondence between LLL participation and digital skills among older respondents. However, not all countries fit the trend, confirming that benchmarking participation rates indeed provides only a partial picture. Interestingly, the digital skills of older respondents in Flanders were higher than expected on the basis of the Flemish LLL participation rate.

Appendix Analysis of the source data for the Flemish Region

In this report, we relied on the international AES-dataset distributed by Eurostat. However, this dataset does not contain information on the region in which the respondent is living. Hence, we had to rely on the language in which the survey was administered to identify Flemish respondents.

On January 16, 2015 we received the dataset from the FOD Economie containing the Belgian source data on the AES, which are identical to the data included in the international AES-dataset but with some additions, including the region of the respondent.

Comparison of participation rates between the source-dataset and the Eurostat-dataset

Table 23 gives an overview of the total 'Flemish' sample size in both the international dataset (with identification on the basis of the language in which the survey was administered) and the source dataset (with identification on the basis of the region of residence). The table shows that the observed participation rates are almost identical. **Hence, the identification used in this report does not have a major influence on our conclusions.**

Table 23: Comparison of International and source dataset

	International dataset	Source dataset
Sample size	3.150	3.263
LLL participation rate	39.89%	39.73%
Formal participation rate	8.37%	8.31%
Non-formal participation rate	34.81%	34.70%

Providers of LLL activities

The source dataset also enables us to further detail the LLL participation in the Flemish Region. For example, it enables us to identify who are the major providers of LLL. Formal education is mainly provided by CVO, Syntra and tertiary education institutions, while non-formal training was mainly provided by employers.

Table 24: Providers of LLL

Formal		Non-Formal	
CVO / Avondschool/ OSP / TKO	58%	Werkgever en/of zijn opleidingseenheid	43%
SYNTRA	20%	Private instelling waar onderwijs en opleiding niet de hoofdactiviteit is (bv. leverancier van uitrustingen, …)	14%
Hogeschool	13%	Instelling voor formeel onderwijs (bv. een school, hogeschool, universiteit, Centrum voor Volwassenenonderwijs/Sociale Promotie, Basiseducatie, …)	13%
Universiteit	8%	Opleidingsinstelling waar niet-formele opleidingen worden aangeboden (bv. academie, DKO, NHA, NTI, …)	9%
School (lager of secundair)	3%	Non-profitorganisatie, bv. vzw, cultuurvereniging, politieke partij, regionaal/lokaal bestuur, …	8%
Conservatorium	1%	Niet-commerciële instelling waar onderwijs en opleiding niet de hoofdactiviteit is (bv. bibliotheken, musea, ministeries, VDAB/FOREM/ACTIRIS/ADG, …)	5%
Centrum voor Basiseducatie	1%	Individuen (bv. studenten/docenten die privélessen geven)	4%
Open Universiteit	1%	Werkgeversorganisatie, Kamer van Koophandel, vakbond	3%

Comparison between LFS and AES

In Belgium, the AES was collected as a drop-off to the LFS. Interestingly, the data collected in both surveys can be coupled. Hence, we have information on the same respondents, on which two different surveys were conducted.

Furthermore, the Belgian LFS-source data do not only collect LLL participation in the most recent 4 weeks, as required by the international definition, but additionally participation in the preceding 12 months, as required in the AES (unfortunately, at this moment we only have the information on the participation in the 12 months). This enables us to compare the LLL participation as observed in the LFS with that observed in the AES, removing the bias by differences in the reference period (see 5.1).

Strikingly, the participation rates recorded (on the same sample and with the same reference period) differ rather drastically, with about a factor 2 (Table 25).

Table 25: Participation rates in both datasets

	AES	LFS
LLL participation rate	39.7%	21.5%
Formal participation rate	8.3%	4.3%
Non-formal participation rate	34.7%	18.7%

Hence, a lot of respondents are classified differently between both surveys. Table 26 lists for each instance of LLL what number of respondents is classified in each category. For example, of all 260 formal participants in the AES, only 89 (=34%) are also registered as formal participants in the LFS.

Table 26: Cross-classification of participants in both datasets

Formal				Non-formal				LLL			
	LFS				LFS				LFS		
AES	0	1	Total	AES	0	1	Total	AES	0	1	Total
0	2961	42	3003	0	1972	149	2121	0	1857	108	1965
1	171	89	260	1	662	480	1142	1	692	606	1298
Total	3132	131		Total	2634	629		Total	2549	714	

To further examine these relatively strong differences between both surveys, we compared the LLL characteristics (only available for those who reported participation in the AES) of the learning activities, for two separate groups of respondents: first, those who recorded participation both in the LFS and in the AES, and second, those who only recorded participation in the AES. If a certain type of LLL activity is overrepresented in the second group, it probably was not (fully) covered by the LFS.

Regarding the difference in *formal* education, the most important difference between both groups was the average number of hours invested. In the group of respondents who reported formal participation in both surveys, this corresponds to a relatively intense participation (mean: 325 hours). By contrast, those who did not report participation in the LFS only reported a mean of 151 formal hours a year. This seems to suggest that smaller courses in particular have a high probability of not being recorded in the LFS, probably due to the shorter time respondents have to remember their LLL activities in the presence of an interviewer. A minor issue might be that Syntra-trainings are less well covered by the LFS: 25% of the AES-participants who failed to register as a participant in the LFS reported to have participated in a Syntra-course, in contrast to 9% among those who reported participation in both surveys.

As regards the differences in *non-formal* education, these seem not to be related to the number of activities or the number of hours invested in LLL, as both are roughly equal in both surveys. Participants in supervised on-the-job training alone are overrepresented in the group of those not reporting participation in the LFS (31% vs. 19% in the control group); as we saw above, this particular instance of LLL was not mentioned in the LFS-questionnaire, in contrast to the AES.

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