Study on Access to Education and Training –Tender No EAC/38/04, Lot 1

By Manuel Souto Otero and Andrew McCoshan

Final Report for the European Commission

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EXECUTIVE SUMMARY

Introduction and project aims

The conclusions of the Lisbon Summit (2000) set the ambitious strategic goal for Europe of becoming "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" by 2010 and put education and training policies at the centre of the European policy. This requires not only a "radical transformation of the European economy", but also a "challenging programme for the modernisation of *social welfare and education systems*", including the provision of access to education for all

In December 2004 ECOTEC Research and Consulting was commissioned by the European Commission to undertake a study on access to education and training in Europe and to take stock of the progress since Lisbon. The overall objective of the contract is to:

"contribute to the programme Education & Training 2010 via supporting the statistical and analytical work linked to it as regards the theme of access to education and training."

The *specific objective* is to get an insight into *access* to pre-school, higher education and adult education and training in Europe.

Methodology

The study was divided into three main tasks:

- Firstly, the production of a **conceptual and analytical framework** which provided the basis to guide the collection of data and the comparative analysis of the study.

- Secondly, a **mapping exercise** on the degree of access to pre-primary education, higher education and continuing vocational education and training.

- Finally, an explanatory **comparative analysis** which looks at how different country performances in the dimensions for which information was gathered in the mapping exercise can be explained.

Results

Conceptual framework

ISCED definitions were largely accepted for this study in the areas of pre-primary and tertiary education. However, for pre-primary education we departed from ISCED to incorporate learning in the household in order to allow for the fact that pre-primary education does not take place in isolated instances within a clearly specified institution but is shaped by the combination of learning opportunities granted the child within formal and less formal education environments. With regard to adult education the definition used permitted learning undergone in formal and less formal learning settings regardless of whether it is job-related or non-job related, in line with the lifelong-learning paradigm.

Access was defined as 'participation' in each of the phases of lifelong learning under analysis. Participation means that an individual has had the opportunity to experience an education or training opportunity. This differentiates the notion of access employed in this report from two other notions: a 'formal' definition of access, which stresses the importance of having the *right* to participate in an educational programme, without being concerned with whether this right can actually be exercise in practice; and a definition of access that emphasises the importance of completing the programme of study/ training (which broadly equates 'access' with 'graduation').

In order to measure participation in pre-primary and tertiary education gross enrolment rates were used (the total number of pupils enrolled in specific grades divided by the estimated number of people in the appropriate age range for those grades). Gross enrolment rates indicate the capacity of the education system to enroll students of a particular age group, however this group is defined. As such, gross enrollment rates take into account the extent of over-aged and under-aged enrolment in a way that net enrolment rates do not. This is in line with the recognition that different individuals will have different learning pathways through life, and will not necessarily follow a strict sequence in their educational career, which is consistent with the lifelong-learning paradigm.

Analytical framework

The study sought to map the performance of EU countries and their main OECD competitors in relation to access to education and training, but in addition to this task, it also sought to provide an insight into what factors determine participation in education and training. Building on existing literature, ECOTEC produced three analytical frameworks outlining macro-factors that have been identified to explain variations in levels of access to pre-primary, tertiary and adult education. The frameworks proposed were as parsimonious as possible, but at the same time needed to reflect the complexity of factors affecting access. The explanatory power of the selected variables (political, economic, sociological and systemic) was tested, as far as data availability permitted, which, unfortunately, was lower than desirable. However, the aim of the data analysis was not to test the theories; rather, the theories were employed as heuristic tools, to ascertain a range of variables that could be usefully employed in our analytical framework to help to explain variations in access, and to

guide the study's collection of data and policy recommendations. The analytical frameworks employed were as follows:

Table 1: Analytical frameworks for the study

Pre-primary education

Dependent variable	Independent var.	Data availability	Expected relationship between variables
Pre-primary education			
Gross enrolment rates	Starting age of compulsory education	AMA	+
	Pre-primary education as a statutory right	AMA	+
	Employment growth	AMA	+
	Availability of part-time jobs	AMA	+
	Incidence of single parenthood	ABA	+
	Incidence of dual earning households	ABA	+
	Private costs of pre-primary education	ABA	-
	Availability of parental leave	NF	-
	Cultural norms age children should start ed.	NF	-
Tertiary education			
Gross Enrolment rates	Graduation rates secondary education	AMA	+
	Strength of the apprenticeship system	AMA	-
	Demographic trends	AMA	-
	Individual economic benefits	AMA	+
	Degree of social inequality	AMA	-
	Degree of public investment	AMA	+
	Degree of social protection	AMA	-
	Financial support to students	AMA	+
	Individual perceptions benefits access tertiary	NF	+
Adult education and training			
Access to LLL	Extent of participation on CET in works-council type bodies	AMA	+
	Intensity of collective bargaining on CET	AMA	+
	Joint governance of CET funds by social partners	AMA	+
	Training levy and earmarked contributions at national level	AMA	+
	Training levy and earmarked contributions at sectoral level	AMA	+
	Level of technological change	AMA	+
	National industrial profile (private investment R&D)	AMA	+
	Level of learning organisations	ABA	+
	Individual benefits	NF	+
	Degree of public investment	NF	+

Source: ECOTEC Research and Consulting Ltd.; Key: AMA= data available for multivariate analysis, ABA= data available for bivariate analysis only, NF= data not found.

Data for the empirical testing of our frameworks was collected mainly from EUROSTAT, EURYDICE, World Bank, UNESCO and OECD databases.

Although the analysis performed had some limitations due to lack of data, most of the variables proved to be significant in our regressions, which means that they were found to have a systematic relationship with levels of access.

In addition to examining overall levels of access, the study also explored personal characteristics that might be a barrier to access and hence might be of relevance to policy-makers. The table below shows the factors for which data was sought to explore inequalities in access. Once again, data availability put some boundaries on the inequalities that could be explored.

Table 2: Inter-group inequalities

PRE-PRIMARY EDUCATION	
Variable	*Availability*
Socio-economic background of the parents	NF
Ethnic background	NF
Gender	F
TERTIARY EDUCATION	
Age	F
Socio-economic background	NF
Ethnic background	NF
Gender	F
ADULT EDUCATION AND TRAINING	
Previous level of educational attainment	F
Occupational status (full-time / part-time / unemployed)	F
Occupation	F
Gender	F
Age group	F
Firm size	F
Ethnic background	NF
Socio-economic background	NF

Source: ECOTEC Research and Consulting Ltd.; Key: F= Found; NF= Not found

The results from the mapping and analysis of access trends in pre-primary, tertiary and adult education were as follows:

Access to pre-primary education

Gross enrolment in pre-primary education in most EU countries was found to be ahead of international competitors such as Japan and the USA. Trends since Lisbon are difficult to establish, since data is only available to 2002. However, looking at trends from 1995 we found that gross enrolments in pre-primary education are increasing in a majority of EU countries. This trend is more pronounced in the New Member States and Candidate countries, which could be expected given their low access rates in 1995. Some supply problems, however, persist: ten European countries have waiting lists that hinder access to pre-school education (Austria, England, Germany, Iceland, Lithuania, the Netherlands, Norway, Portugal, Romania and Switzerland). The situation is similar in the US and Japan. As a result, private supply is expanding in many countries.

Regarding learning in the household, Belgium was the EU leader, with each adult between 20 and 74 years of age investing on average 14 minutes per day in the household teaching, playing and talking to children. At the other end of the spectrum, in Finland and France only 6 minutes were invested. This difference would result in approximately 2 extra weeks of learning per child per year in a household with two adults in Belgium compared to these other two countries, which is a significant amount of additional learning time.

When testing for determinants of levels of access to pre-primary education we found that the relationship between enrolment rates and both stating age of compulsory education and pre-primary education as a statutory right is negative and substantial. Increasing in one year the starting age of primary education reduces the net enrolment rate in pre-primary education by 9% in our model specification. Equally, making pre-primary education a statutory right reduces the net enrolment rate by 9%. The negative relationship between the starting age of compulsory education and access to pre-primary education may be explained because in the cases where participation in pre-primary education is shorter parents may be more willing to pay for it without looking for alternative arrangements. The negative relationship between pre-primary rates of enrolment and statutory right on the other hand may be driven by the fact that legislation in this field has been introduced only in the past five years and for children of *certain ages* in most cases where it is established, and do not necessarily lead into universal participation. It is also possible that in some countries this right has been recently introduced precisely to address low levels of pre-primary education, thus creating a negative relationship between both variables.

By contrast part-time employment is positively correlated with net enrolment rates. An increase of 1% in part-time employment increases enrolment rates in pre-primary education by 0.3%.

Regarding access inequalities, we found that there are certain differences in the level of access to pre-primary education by gender, although these are in general rather low – always below 10%.

Access to tertiary education

During the period covered by the study, EU-15 countries had gross enrolment rates in tertiary education that varied between 40% and almost 90%, which represents a very high variation. Differences between leaders (FI, SE) and laggards (such as LU, DE or PT), moreover, were found not to have shortened. Participation rates in New Member States and Candidate countries are in general lower than those of EU-15 countries, and the difference in participation between both groups of countries is even more marked than in pre-primary education. Yet their trend towards increased participation is also strong. Whereas in 1995 their gross enrolment rates ranged from 20-50%, in 2002 they ranged mostly between 30-70%.

Tertiary education enrolment has increased substantially more since Lisbon than in the period 1995-2000 in most EU countries. Trends in the EEA, Japan and USA, however, tell a similar story, with heavy increases after 2000. This may suggest structural reasons for the increase, rather than an impact of the 2000 Lisbon Strategy or the Bologna process on national education policies or enrolment patterns, although they may still have had some effect in EU countries.

Our data analysis showed that public investment is key in increasing levels of access to tertiary education. An increase in public expenditure on tertiary education equivalent to 1% of GDP is associated with a 21% increase in gross enrolment rates. This is a crucial and clear finding from our model, which was particularly robust in the sensitivity analysis we conducted. However, public institutions do not need to go it alone. Private education has been rapidly growing, especially in East European countries. The number of students enrolled was also found to be positively associated with access levels. By contrast, financial support to students was negatively correlated with access, although the relationship is only significant at the 90%, which should make us cautious about establishing strong conclusions from this result. A possible interpretation of this finding is that public funding of tertiary education is important, but would not necessarily need to be directed specifically to general financial aid to students. Targeted funding for poorer students, coupled with expenditure on other items may be more efficient expenditure to increase participation rates. An alternative explanation may be that financial aid to students has been introduced to a greater degree in those countries with low participation rates, creating a negative relationship between the two variables in the model. Finally, it may also be the case that loans (predominant in some high-access countries) are broadly as effective a financial mechanism as grants (predominant in some low-access countries), but cheaper, and can be made available on a wider basis, encouraging access at lower prices for public bodies – hence the negative relationship between both variables.

Regarding inequalities, Nordic European countries, the UK, the Netherlands and Czech Republic, Hungary and Latvia have high rates of access to 5A programmes by people over 30. Central, Southern and the other Eastern European tend to have low rates of access for this group. Finally, in most countries there is a higher proportion of females than males accessing ISCED levels 5 & 6. This is the case in virtually all European countries; the tendency has been exacerbated since 1999.

Access to adult education

Participation rates in lifelong learning vary widely between EU countries. Whereas European leaders such as Sweden and Denmark have participation rates at around 30%, most European countries struggle to reach the 5% mark. The European average is 9.9%. The Lisbon objective of 12.5% of the population participating in lifelong learning, therefore, is still a distant goal for many European countries. The increase in the period 2000-2004 for the EU as a whole has been exactly 2% or an average of 0.5 percentage points increase per year, which would be sufficient to reach the target if sustained for the remainder of the decade. However, the data overstates progress as a result of breaks in time series and there has been in reality only a slight real progress compared to 2000, despite the nominal two percentage point increase, and further efforts would be needed to reach the Lisbon target.

Our quantitative data analysis suggested that the extent of participation of works councils in discussions regarding continuing education and training, the existence of a national training levy, and the existence of a sectoral training levy are negatively related to access to adult education. By contrast, the degree of technological change, the strength of collective bargaining over training issues and joint governance of training funds by social partners had a positive correlation with access to lifelong learning.

Regarding inequalities in access by different groups, Labour Force Survey data shows that the most important variations are seen when comparing rates by age and previous level of education. With regard to age, 25-34 year olds were found to have a rate of 50% and 55-64 year olds one of 30%. For level of previous education, people with low educational attainment had a rate of 23%, whilst those with high educational attainment achieved 69%. Geographical place of residence, gender, occupational status, occupation, and firm size were also found to influence who accesses adult learning, although to a lesser extent.

Conclusions and recommendations

Data availability for access to education has improved markedly in the last few years, and there are data series available for most years for most countries. However, some gaps remain. Based on the work developed for this report ECOTEC recommends:

1. *EUROSTAT produces data on gross and net enrolment rates on an annual basis.*
2. *A new indicator on access to child learning at home is collected*
3. *The need for additional data on quality is examined*
4. *Data on the socio-economic and ethnic background of people enrolled in pre-primary and tertiary education is collected.*
5. *A new wave of data on inequalities in access to adult education is collected through the CVTS4 or the LFS, so that progress since the adoption of the Lisbon Strategy can be tracked.*
6. *Data on the incidence of single parenthood and dual earning households is collected on an annual basis through surveys*
7. *Data on average private costs of pre-primary education per child in pre-primary education, availability of parental leave and cultural norms regarding the age at which children should start pre-primary education is collected by means of a standardised questionnaire*
8. *Data on the number of learning organisations in Europe is collected through one or more of the European Working Conditions surveys.*
9. *The feasibility of collecting data on the benefits of training for the individual and public investment in education for adults is explored.*

The report also argued that vigorous action is needed from Member States to achieve the Lisbon goal and targets by 2010. Moreover, it argued that in order to achieve access to education and training for all changes are needed in a wide range of related policy areas, beyond education, to reflect the fact that available data reveals an important relationship between access and such variables as part-time employment (in pre-primary education), and technological change, collective bargaining, and joint governance of training funds by social partners (in adult education).

However, the analysis also showed the relevance of variables strictly related to educational systems in shaping levels of access. This was particularly so in the case of tertiary education, where there was a clear and significant finding that levels of public funding had a substantial effect, but also in pre-primary and adult education. The main conclusion flowing from the study is that, despite some widespread opinion that public policy has much difficulty in reducing inequalities in access to education, it can make a difference.

1. INTRODUCTION

In December 2004 ECOTEC Research and Consulting was commissioned by the European Commission to undertake a study on access to education and training in Europe. This chapter provides an overview of the policy context and objectives of that project and a brief description of the areas covered by the study.

1.1. Policy context

The conclusions of the Lisbon Summit (2000) set the ambitious strategic goal for Europe of becoming "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" by 2010 and put Education and Training Policies at the centre of the European policy. Broadly speaking there are three broad goals that constitute the Lisbon Strategy:

- Preparing the transition to a **knowledge-based economy** and society
- Modernising the **European social model**, investing in people and combating social exclusion
- Sustaining a healthy economic outlook and favourable **growth** prospects.

The Lisbon European Council stressed that this required not only a "radical transformation of the European economy", but also a "challenging programme for the modernisation of *social welfare and education systems*". The Lisbon Strategy therefore recognises the important role of education as an integral part of economic and social policies, as an instrument for strengthening Europe's competitive power worldwide, and as a guarantee for ensuring the cohesion of European society and the full development of its citizens. Never before had the European Council acknowledged to this extent the role played by education and training systems in the economic and social strategy and the future of the EU[1].

Within the context of the Lisbon goals the European Council that met in Stockholm in March 2001, agreed the 3 overarching strategic objectives for European Education systems:

- Increasing the quality and effectiveness of education and training systems in the European Union
- Facilitating *the access of all to education and training systems*
- Opening up education and training systems to the wider world.

[1] European Council, Lisbon, March 2000. At the same time, the Council noted the principle that an important role of education is to promote the humanistic values shared by European societies, and emphasised that the general aims of education and training include the development of the individual (to their full potential), the development of society (through democracy, equality and cultural diversity) as well as the development of the economy (by ensuring that the skills of the labour force correspond to economic and technical evolution).

In February 2002, the Education Council adopted a "Detailed work programme on the follow-up of the objectives of education and training system in Europe"[2], where these three main objectives were spelled out in 13 strategic objectives, several of which relate to improving access to education. Moreover, the Council and the Commission underlined their determination to provide a comprehensive response to the challenges of the knowledge society, globalisation and the enlargement of the EU, and therefore set themselves ambitious but realistic goals, including that Europeans at all ages will have access to lifelong learning. Recent analyses and updates of the Lisbon Strategy such as the Kok report[3] and the Commission's Communication "Working together for growth and jobs: a new start for the Lisbon Strategy" have reiterated declarations along similar lines. Access, therefore, is high on the EU's political agenda in education and training.

1.2. Project aims

Within the policy context outlined above, the overall objective of the contract is to:

"contribute to the programme Education & Training 2010 via supporting the statistical and analytical work linked to it as regards the theme of access to education and training."

The *specific objective* is to obtain an insight into *access* to pre-school, higher education and adult education and training in Europe.

1.3. Main tasks

The focus of the study has been on indicator-based analysis and on measuring progress in both relevant areas and towards the common benchmarks in areas where they have been adopted. However, the study has not only mapped the situation of selected countries in relation to access to the different stages of lifelong learning; it has also gathered information on other relevant variables that affect the degrees of access to help to explain variations in these levels and highlight areas for practical policy recommendations.

The study was divided into three main tasks:

1) Firstly, the production of a **conceptual and analytical framework** which provided the basis to guide the collection of data and the comparative analysis of the study. The conceptual and analytical frameworks produced for the study outline relevant variables and employ appropriate indicators for those variables in our analysis.

2) Secondly, a **mapping exercise** on the degree of access to pre-primary education, higher education and continuing vocational education and training. This mapping exercise gathers data on key questions, as required in the project's tender specification, such as:

[2] http://europa.eu.int/comm/education/doc/official/keydoc/2002/progobj_en.pdf
[3] "Facing the challenge: The Lisbon Strategy for growth and employment" Report from the High Level Group on Growth and Employment leaded by Wim Kok. November 2004.

- *Are European Education and Training systems succeeding in the endeavour to increase access to lifelong learning?*
- *Do all cross-sections of the population have equal access to Education & Training systems?*
- *What about access to learning opportunities throughout life- are the differences in access to education and training due to occupational status, sex, age etc.?*

and has gone beyond this remit to answer a number of other mapping questions, as presented particularly in chapters six and seven.

3) Finally, an explanatory **comparative analysis** which looks at how different country performances in the dimensions for which information was gathered in the mapping exercise can be explained (for instance the degree of success in widening access to tertiary education). That is, the comparative analysis examines the impact of selected variables on the performance of Education and Training systems in terms of access in Europe and its main international competitors. This explanatory analysis meets the call in the tender specifications for: *an analysis of the differences between countries and the reasons for these differences.*

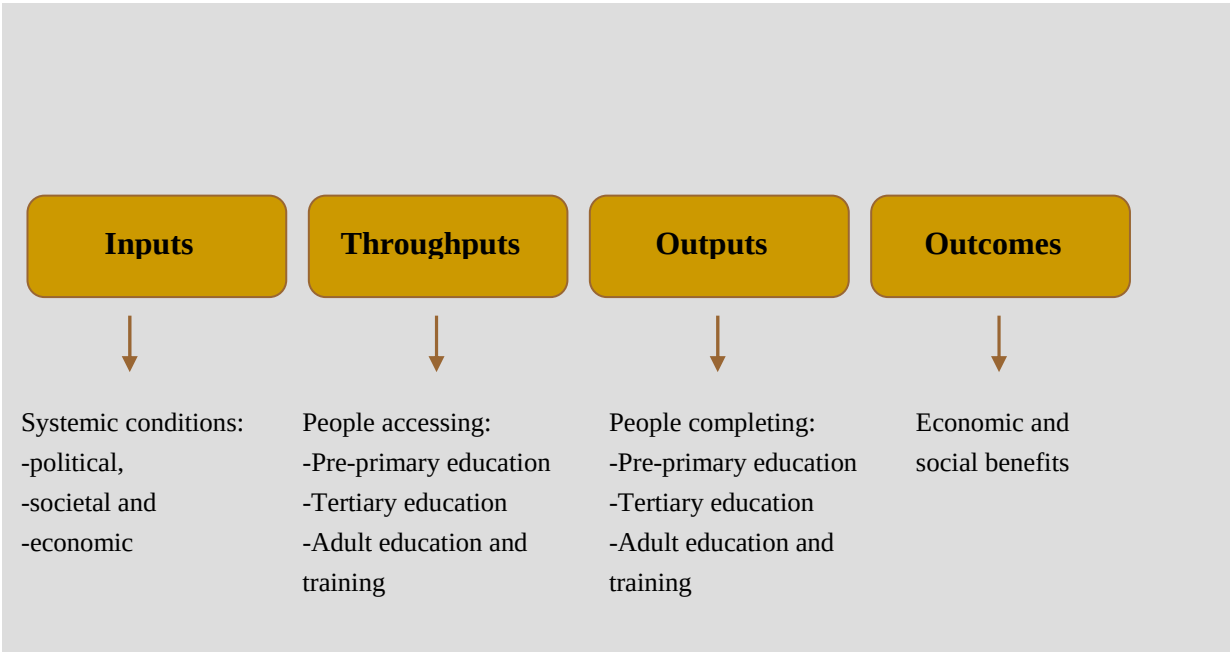
In short, the project provides contextual information about access to education, highlights relevant areas for policy development, and also provides practical advice on how to design and implement effective lifelong learning policies.

1.4. Study coverage

As outlined above, the study covers access to pre-primary, tertiary and adult education and training. However, to fulfil the goals outlined for this project, other areas had to be incorporated into our analysis, and the notion of access itself had to be fleshed out. As such, the study needed to look at the factors that shape levels of access to education and training systems. These factors (outlined in our analytical framework) stimulate (or otherwise) access to education and training by people in different European countries and therefore help to explain differences in inter-country performance.

The areas covered by the study can be organised in an input-throughput-output- outcome model, as showed in Figure 1.1 below. People who enter the education system at a given level or stage are considered throughputs in the model, whereas people successfully completing education/ training programmes are treated as outputs of the education system. People who complete education and training programmes (in particular but not exclusively at higher skills levels) are regarded as potentially making a contribution towards the achievement of economic and social benefits (the ultimate outcomes in the model). This expectation is also explicit in the Lisbon conclusions, as seen above.

Figure 1.1: Areas covered by the study



Source: ECOTEC Research and Consulting Ltd.

For reasons of clarity in the presentation of our arguments, however, this report starts by presenting an analysis of the expected outcomes from increased access to education and training in the Lisbon Strategy, in order to then move to an analysis of the more substantive areas of research: inputs, throughputs and outputs – or, put another way, access levels and the conditions shaping them.

It is important to mention at this stage that the review offered in this project for each of the areas above is heavily determined by the availability or otherwise of suitable data. This issue is elaborated further later on in the report.

1.5. Methodology

The Terms of Reference gave an indication of the core tasks that were required for this study to meet the objectives outlined above and to deliver the expected project results. ECOTEC's methodology for the project consisted of the following stages:

- Inception meeting
- Desk-based research
- Identification of comparable sources of information and data collection
- Literature review and assessment
- Interim report
- Data analysis
- Case-studies
- Draft final and final report.

We briefly outline each of these phases below.

1.5.1. Inception report

An inception meeting between the Commission and ECOTEC staff took place in Brussels on 24/01/05, and served to clarify different aspects of the project's methodology. Following the inception meeting an inception report was produced. The report confirmed the overall methodology and the schedule of work, as approved by the inception meeting.

1.5.2. Desk-based research: conceptual and analytical framework

As specified in the terms of reference, this study had to seek to give a *better understanding* of past and current trends in access to pre-primary education, higher education and adult education and training in the 25 EU Member States (as of 1st May 2004), the four candidate countries, two countries of the European Economic Area (N, ISL) as well as the USA and Japan from 1995 to 2002-2003. In order to gain a better understanding of access trends in education and training and undertake successfully the data gathering and data analysis stages of the project, adequate conceptual and analytical frameworks had to be produced at the beginning of the project, to guide subsequent work and minimise wastage – i.e. in the collection of quantitative and qualitative data. The project's conceptual and analytical frameworks identified *relevant dimensions* for studying access to pre-primary education, higher education and adult education and training. In doing so, they guided the identification of relevant indicators both for the explanatory comparative analysis, and for the project's mapping exercise. *In short, the frameworks clarified the nature of the data required for the project*

1.5.3. Data collection and mapping exercise

After the production of the conceptual and analytical frameworks for the study collection of data on access to pre-primary education, higher education and adult education and training was undertaken. These data were employed in the study's mapping exercise and comparative analysis. It is necessary to highlight at this point that much data that would have been of used for this study –as outlined in the study's analytical and conceptual frameworks, is not currently available, which has hampered to some extent the conclusions that could be extracted for this report. When data judged relevant by the study's conceptual framework was not available we have made proposals on new data to be collected.

1.5.4. Interim report

During April an interim report was submitted to the European Commission. A meeting was held in Brussels in May to discuss that report.

1.5.5. Comparative data analysis

This stage of the research process brought together the analytical framework developed in the first stages of the research and the data collected for the mapping exercise and had as its main

output the three thematic chapters analysing access to pre-primary education, higher education and adult learning presented in this report.

1.5.6. Case studies

After the analysis of data five case studies of good practice were produced, to illustrate how access to pre-primary education, higher education and adult education and training can be shaped in practice by different stakeholders, including national governments. Case studies cover national policies that have had an impact in expanding access in each of the three types of education and training. The aim of the case-studies was not to show "the" way to expand access but to provide a practical guide for policy-makers, social partners and other stakeholders on some strategies that have been recently successful in expanding access in selected EU countries. Case studies are presented in one of the study Annexes.

1.5.7. Final reporting and study outputs

Upon the completion of the case studies, and during the ninth month of the project, ECOTEC prepared this ***final report*** complying with the requirements set out in the terms of reference, after having received extensive comments from the European Commission on a draft final report during the eighth month of the project.

The remainder of this report is structured as follows: the next chapter reviews in more detail the policy context and how it shaped the research undertaken. Chapters three and four outline the conceptual and analytical frameworks employed. Chapters five to seven offer a review of access to pre-primary, tertiary and adult education in the countries under review. Chapter eight presents our conclusions.

Chapter 1 Summary

The conclusions of the Lisbon Summit (2000) set the ambitious strategic goal for Europe of becoming by 2010 "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". It put education and training policies at the centre of European policy

This requires not only a "radical transformation of the European economy", but also a "challenging programme for the modernisation of *social welfare and education systems*", including providing access to education for all.

This report tracks progress in the expansion of access to pre-primary, tertiary and adult education during the last 10 years (1995-2005) in Europe and amongst its main international competitors. It also explores key factors behind existing variations in access to education and training in these countries.

2. ACCESS TO EDUCATION AND TRAINING IN THE CONTEXT OF EUROPE 2010

2.1. Introduction

This chapter analyses recent economic and social developments in Europe, the dilemmas that they have created for European policy-makers, and the consequences that they are having for European education and training systems and access to them.

A straightforward connection between skills and economic progress is often presented in academic and policy statements at national and international level, in Europe and outside. The Lisbon strategy made this connection very explicit. Never before had the EU been so clear about the crucial role of education and training in achieving economic progress and social inclusion. This is a positive development. There is abundant research that shows that a link between education, training, economic progress and social inclusion exists. However, existing research also shows that education and training is not a magic recipe that will bring about the desired effects under any conditions. Although the connection between skills and economic progress probably exists, it is less straightforward than sometimes assumed. Skills are not the only, perhaps not even the most important, competitive factor in Europe. Availability of a high-skilled workforce, however, *can* help in the transition to a knowledge based economy.

Equally, education and training systems should be capable of delivering progress towards the Lisbon strategy. Such progress can be measured through quantitative and qualitative indicators, as attempted in this study. The actual contribution, however, will depend on the performance of different factors in a wide policy-mix that would include not only education and training policies, but also employment, tax and industrial policies, amongst others, as recognised in the Lisbon Agenda.

The next section looks in more detail at the relationship between skills and competitiveness. The strategic vision of the EU to respond to the challenges of the knowledge economy is then reviewed. Finally, the chapter argues that the Lisbon agenda is not only about economic progress, but also about social inclusion. This dual character of the agenda provides further basis for investment in and for guaranteeing access to education and training for all.

2.2. The relationship between skills and competitiveness: the micro-level

Skills and competitiveness are related[4]. However, in spite of the strong, and sometimes unproblematic link, that part of existing academic literature (in particular parts of human capital literature) and policy-makers assume, it is necessary to stress that the relation between these elements in the real world is more complex than often presented[5].

The strategic management literature is a notable exception to the above trend. It argues that what makes a firm successful are a set of unique capabilities that allow it to do things

[4] Porter, M. E. (1990) *"The Competitive Advantage of Nations"*. New York: Free Press.
[5] This section relies on Coleman and Keep (2001) Background Literature Review for PIU Project on Workforce Development, PIU, Cabinet Office.

differently and better than its competitors[6]. Some of these core competences are bound up in the skills of the workforce, or sections of it, but this varies widely between firms and sectors[7]. For example, in a software development firm the core organisational competences are fairly widely distributed across the entire workforce. In a discount supermarket chain skills in stock control and efficient purchasing and logistics are key to its trade in low priced goods. These reside in a small number of specialist managerial staff in head office.

In this context blanket upskilling of the workforce is liable to be inefficient if it is not congruent with the allocation and alignment of core competences within the organization, for individual firms. Whether an organisation's core competences are widely distributed or concentrated will have a major impact on who is trained, in what, and how much. IALS data on the distribution of training indicates that there are very substantial intersectoral differences in the type, level and intensity of training on offer to the workforce. This is of special importance where policy prescription is the objective, because experience suggests that what works in one sector or occupation may well not work in another.

Rather than seeing skills as the key to competitive success, it might be more realistic to view upskilling as one model amongst a number of competing models. These alternatives include: seeking protected markets, growth through takeover, seeking monopoly power, cost-cutting and new forms of Fordism[8]. Not every firm will want or need to make a step change to move upmarket.

However, new pressures, described in the next section, are providing more incentives for countries to improve their competitiveness through the supply and utilization of a highly-skilled workforce. A key challenge for Europe therefore is to increase current levels of the demand for training, and to make "training pay for businesses" now.

2.3. Competitiveness at the macro-level: economic dilemmas, employment, skills and the European Social Model

There is widespread agreement that the last decade has seen fundamental changes in the thinking underpinning social and economic policy-making in advanced economies that make it all the more important that Europe successfully completes its transition to a knowledge based economy[9].

This transition process has brought new challenges to policy-makers across Europe. The introduction of the new technologies in production processes is rendering some low skill jobs

[6] Prahalad, C. K. and Hamel, G. (1990), The Core Competence of the Corporation, Harvard Business Review, 68, May/June, p. 79-91

[7] It is interesting to note that Prahalad and Hamel derived their concept of organisational core competences from contrasting the long-term, growth-focused business strategies of Japanese companies, with the much shorter-term, finance-driven management of major US corporations (this was before Japanese management went out of favour as the global model of excellence, and was replaced by American corporate dynamism).

[8] E. Keep and K. Mayhew. 1998. 'Was Ratner Right? Product Market and Competitive Strategies and their Links with Skills and Knowledge', Employment Policy Institute Economic Report, Vol 12, No 3.

[9] Although a diverse one, with different economic and skills needs, depending on the competitive profiles of different countries and sectors, and their positions in international markets.

in the industrial sector obsolete, whilst creating a greater demand for highly skilled workers in different sectors. In particular, the volume of low skill jobs in manufacturing is shrinking, while the service sector is becoming increasingly polarised between high skill-well paid jobs and low skill-low paid jobs.

Coupled with the constraints imposed by globalisation on governments' ability to respond to this change, the transformation in the labour market has resulted in what Iversen and Wren (1998) call the 'service sector trilemma'[10]. According to their argument, the goals of *employment growth, wage equality and budgetary constraint*, compatible in the industrial economies of the post-world years, are coming increasingly into conflict in today's advanced post-industrial economies. Creating private sector employment in the service sector, where there is most scope for job creation, implies acceptance of low wage and non-wage costs for most workers in Europe and the US. This is particularly so for people working in non-skilled and mobile sectors, which face competition from East Asia and other parts of the world. Some countries have recently been able to lift the demand for and supply of jobs in sheltered services or services which are not mobile and subject to international competition, such as restaurants, retail trade, and health care fundamentally in the private sector[11]. Given their relatively low productivity, the market for private services can expand primarily if production costs –including payroll costs- are low enough to allow prices that consumers would be willing to pay[12]. The risk is that this will create greater inequality, whilst generating service sector jobs in the public sector by expanding public sector consumption (which can guarantee greater equality through higher wages for low-skilled service sector employees[13]) is constrained by budgetary limits[14]. The only option available for EU governments, therefore, is to invest in human capital and create jobs in high-added value sectors[15]. Whilst individual firms can still be profitable operating in low-skill markets (competing in international markets through low-wages), the maintenance and improvement of living standards in European countries will depend on their ability to compete in international markets on the basis of a highly educated, productive workforce[16].

[10] Iversen, T. and Wren, A. (1998) 'Equality, employment and budgetary restraint: The trilemma of the service economy', *World Politics*, Vol. 50, pp. 507-46.

[11] Clayton, R. and Pontusson, J. (1998) "Welfare-State Retrenchment Revisited: Entitlement Cuts, Public Sector Restructuring, and Inegalitarian Trends in Advanced Capitalist Societies", World Politics 5:67-98.

[12] This was, among others, brought about through effectively reducing the tax wedge at the lower end of the labour market. Australia, for instance, following the logic of negative income tax, offers subsidies in the form of tax credits to workers in low paid-jobs. The aim is to avoid the strong work disincentives associated with the poverty traps typical of Anglo-Saxon countries with their strong reliance on means-tested benefits. By contrast, employers in the Netherlands hiring low-skilled workers are exempted from social contributions. These strategies are of minor importance in mainly tax-financed welfare states such as Denmark, where the tax wedge at the lower end of the income scale is already rather low.

[13] Recent analyses by Lucifora and Heurs based in the cases of France, Great Britain and Italy show that, indeed, in the three countries low skilled public sector workers are paid higher wages with respect to their private sector counterparts, whilst the reverse is true for skilled workers. These effects are more pronounced for females. Lucifora, C. and D. Heurs (2004) "Public sector pay gap in France, Great Britain and Italy" Centre for Economic Performance Working Paper Series, The London School of Economics and Political Science.

[14] Ferrera, M., Hemerijk, A., and Rhodes, M. (2000), 'The Future of Social Europe: Recasting Work and Welfare in the New Economy, Report for the Portuguese Presidency of the European Union'.

[15] See also Reich, R. B. (1991) "The work of nations: Preparing ourselves for 21st Century capitalism" Alfred A. Knopf.

[16] As noted by Ferrera et. al. (2000) this should go in parallel to a concerted policy effort to increase job opportunities for low skilled groups who, for whatever reason, continue to lack marketable skills.

Indeed, a "race to the bottom", in which cheap labour is the major asset for international competitiveness is not compatible with the "European Social Model". Rather, the European Model is a "beneficial constraint[17]" to that race based on the recognition that social justice can contribute to economic efficiency and progress[18]. This would, as Ferrera *et al* suggest[19], be based on comprehensive education and training, alongside other policy measures, which allow Europe to compete in science-based, skilled-labour-intensive technological sectors, creating more and better jobs for all. As the Council has stated:

> *"The European Social Model, with its developed system of social protection, must underpin the transformation of the knowledge economy. People are Europe's main asset and should be the focal point of the Union's policies. Investing in people and developing an active and dynamic welfare state will be crucial both to Europe's place in the knowledge economy and for ensuring that the emergence of this new economy does not compound the existing social problems of unemployment, social exclusion and poverty"* (Council of the European Union, 2000, point 7)"

The importance of education for achieving prosperity is highlighted by a number of macro-economic analyses that have found a positive relation between human capital formation at national level and economic growth[20]. Demand for highly skilled workers seems, accordingly, to be increasing at a very high pace indeed. It is evident that there has been a marked increase in the relative numbers of skilled workers in the OECD labour markets in recent years. However, increased relative supply of skilled workers has been coupled with an increase in the relative wage of skilled workers (graduates) compared to their less skilled counterparts (non-graduates). This phenomenon has represented a major conundrum to labour economists in recent times. If the relative supply of skilled workers increased, one would expect an accompanying decline in the relative wage of skilled workers. The fact that the opposite has occurred must therefore be explained by a relative increase in the demand for skilled workers,

[17] Streek, W. (1992) "Social institutions and economic performance: studies of industrial relations in advanced industrial economies" Newbury Park, Califonia, Sage.

[18] Hemerijck, A. (2002) "The self-transformation of the European Social Model(s)", in Esping-Andersen, G. (2002) "Why we need a New Welfare State", Oxford, Oxford University Press.

[19] Ferrera, M., Hemerijk, A., and Rhodes, M. (2000), 'The Future of Social Europe: Recasting Work and Welfare in the New Economy, Report for the Portuguese Presidency of the European Union'.

[20] Bassanini, A. and S. Scarpetta (2001) "Does human capital matter for growth in OECD countries evidence from pooled mean-group estimates? OECD Economics Department Working Paper no 282; la Fuente, A. and R. Domenech (2001) "Educational attainment in the OECD, 1960-90" Mimeo. Hanushek , E. and D. Kimko (2000) "Schooling, labour force quality and the growth of nations" American Economic Review 90(5), pp.1184-1208; Lee, D.W. and T.H. Lee (1995) "Human capital and economic growth –tests based on the international evaluation of educational achievement" Economics Letters 47, pp. 219-225; Dessus, S. (1999) "Human capital and growth: the recovered role of educational systems", Mimeo, The World Bank, amongst others. The results of these studies, however, have been contested. The following papers reported an insignificant effect of education and economic growth: Behabib, J. and M. Spiegel (1994) "The role of human capital in economic development: evidence from aggregate cross country data" Journal of Monetary Economics 34, pp.143-173; Krueger, A. M. and Lindahl (2001) "Education for growth: why and for whom?" Journal of economic literature XXXIX, pp.1101-1136. Temple, J. (1999) "A positive effect of human capital on growth", Economics letter 65 pp.131-134; Temple, J. (2001) "Growth effects of education and social capital in the OECD" Mimeo. The lack of effects in the later studies, however, seems to be associated with the relative lack of quality in the data they employed – see De la Fuente and Ciccone (2003) "Human Capital in a global and knowledge-based economy" Report to the European Commission, DG Employment and Social Affairs, Luxembourg, Office for Official Publications of the European Communities.

which is greater than the relative increase in supply.. Europe, therefore, needs a more educated workforce[21]. To the extent that this depends on expanding access to education and training, this project will help to shed light on how well the foundations for such a workforce are being laid.

2.4. Beyond competitiveness: education and social inclusion

The Lisbon Strategy did not establish competitiveness as the sole strategic objective for Europe: it also emphasised social inclusion. This is reflected in what education and training systems are expected to deliver. Since Lisbon it is increasingly explicit that education and training systems are expected to deliver not only favourable growth prospects and contribute towards the transition to a knowledge-based economy and society but also towards combating social exclusion. Indeed, it may be that the lasting contribution of the Lisbon Council will be this coupling of "greater social cohesion" with the economic objectives that had dominated the EU agenda of the previous decade[22].

As such, social exclusion has become one of the important themes in contemporary social policy debates in Europe. While there is a considerable debate about the precise meaning of the term[23], the most useful definitions have sought to emphasize that social exclusion is concerned with the "inability to participate effectively in economic, social, and cultural life and, in some characteristics, alienation and distance from mainstream society"[24]. Thus defined, social exclusion is linked, but different, to poverty. Social inclusion is an end in itself as participation and respect are intrinsically valuable, while income is only instrumentally so[25].

Many have argued that while income poverty is only one possible (and neither necessary nor sufficient) factor causing social exclusion, persistent or recurrent unemployment can generate social exclusion directly as the involuntarily unemployed are excluded from the world of work, an important aspect of citizenship and participation. In this way, long-term unemployment in particular is seen as an intrinsic problem, even if there are appropriate systems in place that ensure that unemployment does not lead to poverty[26].

[21] De la Fuente and Ciccone (2003) "Human Capital in a global and knowledge-based economy" Report to the European Commission, DG Employment and Social Affairs, Luxembourg, Office for Official Publications of the European Communities.

[22] Atkinson, A. (2002) "Social inclusion and the European Union" Journal of Labour Market Studies 2002:40 (4):625-643.

[23] Evans, M, S. Paugam, and J. Prelis. (1995) *Chunnel Vision: Poverty, social exclusion and debate on social welfare in France and Britain*. LSE STICERD Discussion Paper 115, Oct 95; Atkinson, A. B. (1998): "Social Exclusion, Poverty, and Unemployment." *CASEpaper* 4: 1-20; Klasen, Stephan (1998). *Social Exlcusion and Children in OECD Countries: Some Conceptual Issues*. Paris. OECD.

[24] Duffy, K, (1995) Social Exclusion and Human Dignity in Europe. Council of Europe.

[25] Klasen, S. (1999) Social Exclusion, Children, and Education: Conceptual and Measurement Issues. Background paper for the OECD.

[26] Atkinson, A. B. (1998) "Social Exclusion, Poverty, and Unemployment" *CASE paper* 4: 1-20; Sen, Amartya. (1999) *Development as Freedom*. New York: Knopf.

Berghman[27] distinguishes between four types of integration and participation: civic integration relating to the democratic and legal system; economic integration mainly related to employment; social integration related to inclusion in the public safety net; and family and community integration relating to networks or, what some observers have recently termed 'social capital.'

Thus defined, education is key to social inclusion. Education is one of the most important factors directly affecting economic integration, by means of increasing employment chances, and through them, indirectly facilitating social and family integration, through the provision of an income (which enables participation in family events and other social and community activities) and social security rights.

Finally, education is also key to social inclusion for education and training enable citizens to make use of existing possibilities for full engagement in social and political life as active citizens.

Complementary to the arguments above, the education system can be a source of exclusion if it fails adequately to educate a portion of its students. It is important to highlight as well that some tensions may also exist between education and social inclusion in the long-term. Arts and Gellisen[28] found that as people's educational levels increase, they are less committed to institutionalized solidarity and equality which fosters social inclusion for all. This result supports Kluegel and Miyano's thesis[29] that, owing to its strong correlation with income, educational attainment differentiates between those who expect to benefit from and those who expect to pay the price for solidarity and equality. A key challenge for Europe in the coming years will therefore be to increase levels of educational attainment and prosperity for its population, whilst at the same time maintaining the commitment of European citizens to the European Social Model.

[27] Berghman, J. (1995) "Social Exclusion in Europe: Policy Context and Analytical Framework" In Room, Graham (ed.) *Beyond the Threshold*. Bristol: Policy Press.

[28] Arts, W. and J. Gelissen (2001) Welfare States, Solidarity and Justice Principles: Does the Type Really Matter? Acta Sociologica 2001(44):283-299. This study makes use of data from the *International Social Survey Program 1996* and the *European Values Study 1999*, which together cover preferences of citizens from 20 welfare states.

[29] Kluegel, J. R. & Miyano, M. (1995). Justice beliefs and support for the welfare state in advanced capitalism. *In* J. R. Kluegel, D. S. Mason & B. Wegener (eds.), *Social Justice and Political Change: Public Opinion in Capitalist and Post-Communist States*, pp. 81– 105. New York: Aldine de Gruyter.

2.5. Conclusion

The previous discussion has highlighted that the links between skills and economic performance are more problematic than often assumed, and that access to education and training will not, per se, deliver the Lisbon goals. The discussion has also identified several aspects that have crucial consequences for the purposes of this study and pose limits to its conclusions.

Given sectoral differences, amongst others, expanding access across the board may not be the optimal strategy for achieving economic success for individual companies, but it is becoming the only possible strategy for governments in advanced economies, who want to maintain the standards of living of their populations. Moreover, expanding access across the whole population *is* important for reasons of social justice and social inclusion.

It is important to remember at this point that measuring access to education and training systems without referring to quality can lead to erroneous conclusions. To deliver the Lisbon goals not only is *more* education and training needed, but more education and training *of quality and relevance to existing and future labour market needs*. Therefore indicators of the quality of education and training need to be taken into account to complement analyses of access to education and training. This is, however, beyond the scope of this report.

Chapter 2 Summary

The Lisbon strategy made the link between education and economic development very explicit. Never before had the EU been so clear about the crucial role of education and training in achieving economic progress and social inclusion. This is a positive development. There is abundant research that shows that a link exists between education and training on the one hand and economic progress and social inclusion on the other.

However, existing research also shows that education and training is not a magic recipe that will bring about the desired effects under any conditions. Although the connection between skills and economic progress probably exists, it is less straightforward than sometimes assumed. Skills are not the only, perhaps not even the most important, competitive factor in Europe. Availability of a high-skilled workforce, however, *can* help in the transition to a knowledge based economy.

Moreover, the Lisbon agenda is not only about economic progress, but also about social inclusion and strengthening the European Social Model, in which education and training also have an important role. This dual character of the agenda provides further basis for investment in and for guaranteeing access to education and training for all.

3. CONCEPTUAL FRAMEWORK

3.1. Introduction

The main aim of the conceptual framework for the study is to provide definitions of the different phases of education and training covered (pre-primary, tertiary and adult) and also of the term 'access'.

3.2. Defining pre-primary, tertiary and adult education

Definitions for each of these different areas have different starting points. The starting point for the definitions of pre-primary and tertiary education are the properties for each outlined in the "revised" Internal Standard Classification of Education (ISCED), 1997. The ISCED classification is a useful and widely accepted methodological tool that classifies diverse educational systems into a standardised number of levels. ISCED definitions are widely accepted and are used by national and international organisations (including OECD, UNESCO, EUROSTAT) in the collection and collation of statistics[30].

Whilst in general accepting the ISCED definitions for pre-primary and tertiary education, we will depart from them in the case of pre-primary education, to incorporate learning in the household. The ISCED definition of pre-primary education is limited to the institutionalisation of education and learning activities for individuals prior to their entering primary education. It defines pre-primary education (ISCED level 0) as comprising programmes that offer structured, purposeful learning activities in a school or a centre (as opposed to home) to children aged at least 3 years[31]. Such programmes are normally held to include organised learning activities that occupy on average the equivalent of at least two hours per day and 100 days per year. However, within the scope of the study there are countries, for instance Austria and the Nordic countries, in which home care is also regarded as pre-school education. Moreover, in light of the paradigm of lifelong learning, a holistic conceptualisation of pre-primary education requires the inclusion of less formalised learning opportunities for children prior to their entering primary education. Pre-primary education does indeed not take place in isolated instances within a clearly specified institution, but is shaped by the combination of learning opportunities granted the child within formal and less formal education environments. Notably, education that takes place before primary education includes activities in the household that are conducive to learning for the child e.g. listening to parents/ carers read, talking, or playing with them. Although this dimension is therefore included in our analysis, it is necessary to highlight that data on it is scarce.

There is no equivalent tool to ISCED for defining adult education. The definition of adult education is based on the age of the learner (normally from 25 to 64 years of age) and, contrary to the cases of pre-primary and tertiary education, it cannot be directly linked to any particular stage in the formal educational pathway. Adult education is, moreover, an extremely wide concept, which has been defined differently for different international

[30] Full details of ISCED definitions are provided in the technical annexes of this report.
[31] UNESCO

surveys. Given the variation in results from these surveys it is very clear that measuring the extent of participation in adult learning is very sensitive to the definition adopted[32]. In the context of the study we will use it to refer to learning undergone in formal and less formal learning settings, regardless of whether it is job-related or non-job related. This is also the definition adopted by the European Labour Force Survey, which is, therefore, the survey employed to measure access to adult education in this study.

3.3. Defining 'access'

The above discussions have already highlighted a series of methodological decisions to be made in relation to the definition of "access". In this regard, we have adopted two key principles:

- first, we do not link access to any particular learning setting; and
- second, we do not link access to the achievement of a particular educational outcome or qualification.

The first choice is justified because the study aims to assess the level of opportunities for the acquisition of skills through lifelong learning. Skill is the ability to perform a task to a predefined level of competence. It is access to skills which matter for productivity, economic growth and social cohesion, not so much where these skills have been acquired or whether they have been certified.

This approach is, however, not exempt from problems. The level of formal, accredited learning is most often used as a direct measure of skills acquired and can be used to evaluate both the stock and flow of a given skill in the workforce. Furthermore, measuring access to skills acquisition opportunities which are not structured and do not lead to any form of accreditation or certification is inherently more difficult. An approach to overcome this difficulty is to employ direct measures of skills, such as the International Adult Literacy Survey did for adult education and training. Yet another approach, consistent with the aims of this study, is to measure the learning activity that goes uncertified, as does the European Labour Force Survey[33].

Regarding the second choice (that we do not link access to the achievement of a particular educational outcome or qualification), the starting point for the definition of access is "participation" in each of the areas under analysis. Participation means that an individual has had the opportunity to experience an education or training opportunity. This notion of access is different from two other notions: a "formal" definition of access, which stresses the importance of having the *right* to participate in an educational programme, without enquiring whether this right can actually be exercised in practice; and a definition of access that

[32] For a more detailed discussion see A, Jenkins, A. Vignoles, A. Wolf and F. Galindo-Rueda (2002) "The determinants and effects of Lifelong learning" Centre for the Economics of Education, London School of Economics.

[33] See also, F. Green., S. McIntosh and A. Vignoles (2004): "International comparisons of non-certified learning" Final report to the UK Department for Trade and Industry.

emphasises the importance of completing the programme of study/ training (which broadly equates access with graduation).
By linking access with participation, our approach avoids the difficulty found with data on graduation that it does not take into account interruptions, or modular programmes or distance learning, which are of increasing importance in EU countries. Furthermore, it allows for the fact that entrance into education can provide individuals with knowledge and skills - and the economic returns associated with them - even when they do not complete their educational/ training programme[34]. This is therefore a highly appropriate indicator to measure access in the context of the Lisbon Goals, which avoids the need to refer to the more stringent indicator on graduation rates.

Given the importance of participation in our definition of 'access', how do we operationalise it? In light of existing data, our approach has been to use enrolment as a proxy for participation, and, wherever possible, to employ indicators of gross enrolment rather than net enrolment[35]. The reason for this is as follows. The *gross* enrolment rate is the total number of pupils enrolled in specific grades divided by the estimated number of people in the appropriate age range for those grades. Gross Enrolment Ratio is widely used to show the general level of participation in a given level of education. It is often used as a complementary indicator to Net Enrolment Rates by indicating the extent of over-aged and under-aged enrolment. The *net* enrolment rate is the total number of *appropriately aged* students enrolled in specific grades divided by the estimated number of people in the appropriate age range for those grades. The gross enrollment rate therefore takes into account the extent of over-aged and under-aged enrolment in a way that net enrolment rates do not do. This is in line with the recognition that different individuals will have different learning pathways through life, and will not necessarily follow a strict sequence in their educational career, which is consistent with the lifelong learning paradigm and is the reason why this indicator is preferred. It is necessary to highlight, however, that over-aged pupils will not always be students who decide to enter the education system at a different moment in time than the standard, but will also include students that have repeated one or more courses.

By defining access in terms of participation we need to point out that our approach does not deny that completion of educational/ training programmes is irrelevant, or that drop-out rates, which may reflect inefficiency in education and training systems or of existing qualification frameworks, should not be a matter of concern for education policy-makers. Rather, we recognise that access entitlements need to be accompanied by other conditions that make such entitlements effective, including the availability of supply, but we place less emphasis on the need to complete particular education and training programmes. Further, we recognize (as already mentioned above) that wider economic and social developments are making it increasingly important to link the concept of access not only to the quantity but also to the *quality* of education and training. With the continuous expansion of education both within and outside formal education systems the question of "access to what?" is becoming increasingly relevant. Addressing this question is, though, beyond the scope of this study.

[34] Layard, R and Psacharopoulos, G (1974) "The screening hypothesis and the returns to education" Journal of Political Economy, 82(5):985-998.
[35] In this case we are referring to pre-primary and tertiary education, rather than adult education.

Chapter 3 Summary

This chapter develops conceptual issues in the definition of access to pre-primary, tertiary and adult education, to frame subsequent work presented in the report.

ISCED definitions are largely accepted for pre-primary and tertiary education. Whilst in general accepting the ISCED definitions for these areas, we depart from them in the case of pre-primary education, to incorporate learning in the household in order to reflect the fact that education outside formal settings is especially important at this stage.

With regard to adult education a broad definition is adopted which encompasses learning undertaken in both formal and less formal learning settings, regardless of whether it is job-related or non-job related, in line with the lifelong learning paradigm.

Finally, access is defined as "participation" in each of the areas under analysis. Participation means that an individual has had the opportunity to experience an education or training opportunity. This differentiates the notion of access employed in this report from two other notions of access: a "formal" definition that stresses the importance of having the *right* to participate in an educational programme, without enquiring whether this right can actually be exercise in practice; and a definition that emphasises the importance of completing the programme of study/ training (which broadly equates access with graduation). To measure participation in pre-primary and tertiary education gross enrolment rates are used (the total number of pupils enrolled in specific grades divided by the estimated number of people in the appropriate age range for those grades).

4. ANALYTICAL FRAMEWORK

4.1. Introduction

This study seeks to map the performance of EU countries and their main OECD competitors in relation to access to education and training. In addition to this task, it also seeks to provide an insight into what factors determine participation in education and training. Although European countries have expanded access to education greatly during the last century, substantial differences persist between countries, and between different population groups within countries. The study attempts to shed light on the reasons behind those differences and therefore to provide Member States with policy recommendations to address low participation levels in order to reach the common targets agreed at EU level. However, as previously mentioned, data limitations mean that the focus is on exploring the reasons for differentials in access to education and training.

The production of the analytical framework for this study is a complex task, since many factors can in principle be considered to have an effect on access levels to education and training. Building on existing theories is necessary in order to filter those factors that do really affect access and include them in the study[36]. As such, the study team has built upon existing academic literature to produce a framework for the study, putting a particular emphasis on the integration of existing knowledge in this area.

Economists, sociologists, political scientists and educators have outlined a series of factors which help to explain differences in access. Yet their work has seldom been put together to assess the relative weight of these different factors (economic, social, political and systemic). Moreover, some key factors in shaping access to education have so far been subject to very little analysis in the literature, like the role of national state interventions. This is of particular relevance for the project, given the audience for its outputs.

It is important to highlight that the aim of the data analysis undertaken for this report is not to test the theories reviewed in this chapter. Testing each of the theories would require a report in itself and different data to that employed here. The theories, however, are used as heuristic tools, to establish a range of variables that can be usefully included in our analytical framework for this project to try to explain, at least to some extent, what factors influence access, and guide our collection of data.

Three analytical frameworks for the study are presented in the next section, one each for pre-primary, tertiary and adult education. The final part of the chapter briefly outlines the inter-group inequalities that ECOTEC analysed during the course of the study whenever data availability allowed. Again, in the case of inter-group inequalities we provide a list of variables that would be of interest to analyse, and indicate the availability of data. This highlights some important gaps which could be addressed in the future through further data collection by national and international institutions.

[36] The remainder of this section relies on Souto-Otero, M. (2005) "Determinants of access to post-compulsory education and training: A new research agenda", Barnett Working Papers for Social Research 2005/01, Department of Social Policy and Social Work, University of Oxford.

4.2. Inter-country differences

The following subsections provide three separate analytical frameworks to study determinants of access to pre-primary, tertiary and adult education. This section presents macro-level economic, social, political and systemic factors that are expected to influence overall levels of access to each of these stages of lifelong learning in European countries. This is relevant for the study since Lisbon targets are mainly linked to overall levels of access, rather than to inter-group inequalities. The inter-group inequalities to be researched during the project are outlined in the last section of this chapter.

The reviews presented in these sections naturally reflect to some extent the availability of research which varies considerably both across the different phases of education/training and in terms of its focus on the different factors that give rise to variations in access. Access to tertiary education, in particular, has been subject to more in-depth analysis to date than access to either pre-primary or adult education.

4.2.1. Access to pre-primary education

Since the 1960s participation in pre-primary education has increased in the majority of EU countries. However, access still varies widely across Europe. In France, Belgium, Italy, the UK, Liechtenstein and Spain participation by four year olds is almost universal, whereas in Ireland and Finland less than 50% of children in this age group access pre-primary education. How can we account for these differences?

Previous work by academics and international organisations such as the OECD[37] suggests that key factors can include:

1) Government regulation with respect to:
   i. the statutory age at which children start the compulsory phase of education;
   ii. whether access to pre-primary education is a statutory right; and
   iii. parental leave, which particularly affects children aged under 4.

2) Cultural norms regarding the age at which children should be placed in care outside the home.
3) The incidence of single parent (especially lone-mother) households. In order for lone parents to re-enter or remain in the labour market there is a need a need for greater access to affordable pre-primary education even for very young children.
4) The incidence of dual-earner households. Higher female participation in employment increases both fertility rates (since the costs of children can be more easily afforded by households) and demand for pre-primary education.
5) Labour market conditions (e.g. in times of recession women are more likely to opt out of the labour market, so employment growth or decrease is relevant) and labour market flexibility (including the availability of part-time jobs.)

[37] See, for instance, OECD (2001) "Starting Strong: Early Childhood Education and Care" Paris.

6) The availability and affordability of pre-primary education. Practice varies widely across Europe in the structure and practice of pre-primary education, and the extent to which it is state-supported or private. On average OECD countries pay around 75% of the costs of pre-primary education through public funds, with parents paying the remaining 25%, but there is variation between individual countries.

Information regarding the variables outlined above has been gathered systematically as far as possible during the course of the study in order to explore causes of differential access to pre-primary education. However, data for some of the variables above is not available – see below in this report.

4.2.2. Access to tertiary education

Academic literature on the determinants of access to higher education is more extensive and detailed than the literature that analyses access to pre-primary education. Economists, sociologists, political scientists and educators have all played a part in this field. It has been suggested by different authors that the variables presented in this section have an effect on overall levels of access to tertiary education in different countries. Variables proposed to explain *individual* behaviour – such as level of economic returns to education or "rational choice" sociological explanations - are included in the framework since aggregate individual choices have an effect on overall national levels of access. Since different countries have different economic and social profiles, the inclusion of these variables in our model would, in principle, help us to provide a more nuanced explanation of the determinants of overall levels of access to lifelong learning than would otherwise be possible. However, our analysis has revealed a high degree of correlation between several of the variables presented, which has considerably reduced the number of variables that could finally be incorporated into our model.

It is important to note that the theories presented are not always complementary, and indeed are, on occasion, barely compatible. However, this is not a significant problem for the study since they are used as heuristic tools to identify and explore the variables that might help to explain inter-country differences. In any case such differences were not always the primary concern of these theories and our analysis does not therefore pretend to represent a test for them.

- *Economic variables:*

The main contribution to the explanation of access to education and training from economics is human capital theory[38]. According to this theory, access to higher education depends critically on the demand for it. Educational investment is worthwhile for individuals and will be demanded if the rate of return exceeds the capital cost[39] and the returns of alternative investment opportunities. Individuals will demand education and training as long as it produces a return to their investment in time and money.

The empirical findings of a number of economic studies support many of the conclusions set out in this theory, including the view that education and employment choices are subject to individual cost-benefit analysis. However, as Arum and Hout[40] amongst others have argued, investment in education in the real world proves that many of the assumptions behind human capital theory do not hold. Higher classes, for instance, have more resources to invest in education and occupy professions with higher socioeconomic status. They are also more conscious that more education will lead to higher income, whereas lower income families suffer from imperfect information in their educational investment decisions. Moreover, students/ trainees are restricted in their choices by the curriculum offered in the schools they can apply for. Therefore a wider framework for analysis, including sociological variables, is employed in this study.

- *Sociological variables:*

Sociological literature on access to education seeks to explain why various social groups do not have the same educational prospects, in spite of educational expansion. Socialisation approaches have emphasised the importance of value transmission by peers or role models, typically the parents, to students[41] and the different language uses of different social classes. Least favoured social classes use, if not simpler, at least a different language to that used by the favoured classes. The language used by favoured classes is a precious resource for children to succeed at school and hence to access higher education courses[42].

Different social classes also attach different values to education and training. According to Boudon (1974) lower social classes tend to overestimate the costs and underestimate the

[38] See, for instance, Schultz, T. (1971) "Investment in human capital: The role of education and research", Free Press; "Is there under-investment in college education?" American Economic Review, L (2), May 1960 pp. 346-54. Becker, G. (1964) "Human capital: a Theoretical and empirical Analysis, with special reference to education" Chicago, University of Chicago Press.
[39] Ashton, D. and Green, F. (1996) "Education, Training and the global economy" Cambridge University Press.
[40] Arum, R. and M. Hout (1998) "The early returns. The transition from school to work in the United States" in Y. Shavit and W. Muller "From school to work. A comparative study of educational qualifications and occupational destinations". Clarendon Press, Oxford.
[41] Classic examples of this stream include the work of Glend H. Jr. Elder (1965) "Family Structure and educational attainment: a cross national analysis" American Sociological Review 30(1) 81-96; Strodtbeck, F.L. (1958) "Family interactions, values and achievement" in McClelland, D.C. et. al. "Talent and Society" Van Nostrand.
[42] This argument is developed in both Cultural Capital (Bourdieu) and Social Capital (Coleman) theory. See Bourdieu, P. and J.C. Passeron (1977) "Reproduction: in Education, Society and Culture", London, Sage; Coleman, J.S. (1988)"Social Capital and the creation of human capital" American Journal of Sociology (3):275-305.

benefits of education and training. It may be that, indeed, education has less benefit for them than for better-off classes, who have social connections and other resources to transform educational qualifications into occupation status. Work by Blossfeld and Shavit[43], Marshall[44], Dronkers[45], Goldthorpe[46] and Breen[47] shows that strong links between class of origin and class of destination have persisted during the 20th Century.

Regardless of whether the benefits of education and training are "underestimated" by working classes or just lower, the effect will be the same in terms of low take up of educational opportunities and school attainment. Working classes will demand it less, reducing comparatively their take up of opportunities in higher education. Consistency in the transmission of the same values by both parents is reinforced by high degrees of "educational homogamy", or marriage of persons with like educational attainment (Nam, 1965; Mare, 1991; Halpin and Wing Chan, 2003[48]).

This will not mean that there will not be any kind of demand for those opportunities. When working class parents value education and training highly and have upwards mobility aspirations for their offspring, this can be a decisive factor in influencing whether their offspring will take up college education or not (Cohen, 1965[49]), but this would not be the reality for the majority of children. Breen and Goldthorpe (1997[50]) and Breen (2001) use rational choice models of "risk aversion" that can help to explain why class inequalities in educational participation rates have remained largely unchanged[51]: that is, young people have, as their major *educational goal*, the acquisition of a level of education that will allow them to

[43] Blossfeld H.P. and Y. Shavit (1993) "Persisting barriers: changing educational opportunities in thirteen countries" in Shavit, Y. and H.P. Blossfeld (eds.) "Persisting inequality: changing educational attainment in thirteen countries, Westview Press.

[44] Marshall, G., A. Swift and S. Roberts (1997) "Against the odds? Social class and social justice in industrial societies" Oxford, Clarendon Press; Marshall, G., D. Rose, H. Newby and C. Vogler (1988) "Social class in modern Britain" London, Unwin Hyman.

[45] Dronkers, J. (1983) "Have inequalities in educational opportunities changed in The Netherlands? A review of empirical evidence" Netherlands Journal of Sociology, 19:133-150.

[46] Erikson, R. and Goldthorpe, J.H. (1992) "A constant flux. A study on class mobility in industrial societies" Oxford, Clarendon Press; Goldthorpe, J. H., C. Llewellyn and C. Payne (1987) "Social Mobility and Class Structure in modern Britain" Oxford, Clarendon Press;

[47] Breen, R. (1998) "The persistence of class origin inequalities among the school leavers in the Republic of Ireland, 1984-1993" British Journal of Sociology, 49 275-298; Breen, R. and C. Whelan (1993) "From ascription to achievement? Origins, education and entry to the labour force in the Republic of Ireland during the Twentieth Century" Acta Sociologica, 36:3-17

[48] Nam, C. B. (1965) "Family patterns of educational attainment" Sociology of Education 38(5) 393-403.

[49] Cohen, E. G. (1965) "Parental factors in educational mobility" Sociology of Education vol. 38(5): 404-425. Halpin, B. and Wing Chan, T. (2003) "Educational homogamy in Ireland and Britain: trends and patterns" British Journal o Sociology 54(4):472-495; Mare, R.D, (1991) "Five decades of educational assortative mating" American Sociological Review 56:15-32. Whether the degree of educational homogamy has been increasing or decreasing over the last few decades, however, is still a contested issue, which seems to vary from country to country. See Smiths, J., W. Vitee and J. Lammers (1998) "Educational homogamy in 65 countries: the explanation of differences in openness with country-level explanatory variables" American Sociological Review 63:264-285.

[50] Breen, R. (2001) "A rational choice model of educational inequality" Estudio/Working Paper 2001-166, Fundacion Juan March, Madrid ; Breen, R. and J.H. Goldthorpe (1997) "Explaining educational differentials: towards a formal rational action theory" Rationality and Society 9:3 275-305, reprinted in D.B. Grusky ed. (2001) "Social stratification: class, race and Gender" Westview Press, 459-470.

[51] The authors highlight that their model is better suited to explain transition to secondary, rather than higher education.

attain a class position at least as good as that of their family of origin. Access to higher education therefore depends to an important extent on the education and occupational status of the parents and, more generally, at macro-level, on the degree of income socio-economic inequalities in a given country.

Other sociological variables, like age, gender and ethnicity have been used to compare inter-group inequalities on access to different stages of education and training, but have not been used so often to explain inter-country inequalities in overall levels of access. Information on them is therefore presented separately in this report.

- *Political/administrative variables:*

This strand of literature relates in particular to the work of Wilensky[52], who has focused on the relation between education systems and other functions of the welfare state. He sees the degree of access to higher education in contemporary societies as the result of a trade-off with social protection systems: the lower national comprehensive social protection systems are (low equality of outputs), the higher access to education (high equality of opportunity) will be and vice versa.

Some recent studies also suggest that there may also be a positive association between tertiary education attainment and public expenditure in education, a factor not considered centrally in any of the strands of literature outlined above. Gradstein and Nikitin (2004[53]) for example find a large positive association of government investment with average years of schooling in a sample of over 100 countries and that a doubling in spending is associated with a 40% increase in the number of years of schooling over time.

There are also good reasons to believe that government investment and regulations are important in shaping access to tertiary education. The state is a large provider of higher education, and it defines conditions for access and students quotas, which are on occasions linked to government targets. It can also adopt alternative strategies in relation to financial support to students. Therefore this variable has also been included in our framework.

[52]See Wilensky, H. L. (2002) "Rich Democracies. Political Economy, Public Policy, and Performance" University of California Press; Wilensky, H. (1982) "Ideology, education and social security" in "Income-tested transfer programmes: the case for and against" I. Garfinkel (ed.), New York, Academic Press, Institute for Research on Poverty Monograph Series. Wilensky, H. (1978) "The political economy of income distribution: issues in the analysis of government approaches to the reduction f inequality" in "Major social issues: A multidisciplinary view" J.M. Yinger and S.J. Cutler (eds.) New York, Free Press; Wilensky, H. L. (1975) "The welfare state and equality: structural and ideological roots of public expenditures" Berkeley, University of California Press;

[53] Gradstein, M. and D. Nikitin (2004) "Educational Expansion: Evidence and Interpretation" World Bank Policy Research Working Paper 3245, March 2004.

- *Systemic Variables:*

Other systemic variables are likely to have an impact on access to tertiary education and training. These have received less attention in the literature, since their link to access is more evident than in some of the variables presented above in this paper. They include:

- Graduation rates from upper secondary education. Successful completion of upper secondary education is a requirement to enter much of tertiary education. Low graduation rates at that level therefore limit the pool of people who can enter tertiary education.
- The nature of the provision-mix available in a given country, in particular whether they have strong apprenticeship systems that can work as an alternative to tertiary/ higher education or not.
- Demographic trends, in particular of people aged under 25, who constitute the group that makes most use of HE facilities and the number of students enrolled in tertiary education. Decreasing age cohorts may give place to higher enrolment ratios in tertiary education since places are available for them, with lower requirements.

Framework

Building on the review of the literature presented above and the highlighted research gaps, we suggest that the framework for the thematic analysis of access levels to tertiary education should take into consideration variables which capture:

1) Individual benefits[54] from participation in higher education
2) Individual perceptions of higher education and access to it.
3) The degree of social inequality.
4) The degree of social protection in different countries.
5) The degree and nature of the financing and regulation that shape access to higher education (e.g. financial support to students)
6) The nature of policy and provision (for instance, whether countries have strong apprenticeship systems and secondary education graduation rates)
7) Demographic trends (in particular numbers of people aged under 25 and the number of students enrolled)

The first variable is related to the human capital literature reviewed above. Variables two and three are linked to sociological studies, which have highlighted the importance of perception of the benefits of access to tertiary education and the degree of social inequalities in access decisions. Variables four and five take into account results from our review of political/ administrative variables. Variables six and seven are systemic variables.

[54] Social benefits are not included in this model because they are assumed to be accounted for under point 5 –if social benefits are perceived to exist they will shape the volume of public funding going into education; if they are not perceived to exist, then they will have no impact on access.

4.2.3. Access to adult education and training

Some of the variables affecting the degree of access to higher education are also important in explaining access to adult education and training. In fact, the variable of returns to higher education must be understood as reflecting a "premium" to education and training which encompasses not only higher education but also adult education and training. Other variables, like parenting background, will be of less importance in adult education and training. The sociology of life-cycle has proved convincingly that the later in life educational decision have to be taken, the weaker the importance of parental background in these decisions[55].

We suggest that the key variables or dimensions for analysis here include:

1) Individual returns to adult learning
2) The level of technological change and updating undertaken by employers: firms that continuously update the technology that they use provide their workers with higher levels of continuing vocational training[56].
3) The level of learning organisations in one country. It is anticipated that the higher the frequency of learning organisations, the higher the levels of adult education and training.
4) National industrial profile. In general employees working for larger firms and knowledge-intensive firms are offered more opportunities for training than those working in SMEs.
5) The degree and nature of state actions, through financing and regulation, to positively shape access to adult education and training.
6) Other institutional arrangements, in particular, the nature of employee representatives' involvement in the management of training funds and the level of negotiation of training issues between social partners.

As in the case of the two previous frameworks, data for all the above variables could not be found. Nonetheless, taking stock of the variables of interest from a theoretical point of view – regardless of whether data is available or not - is still a fruitful exercise since it highlights areas for future data collection efforts.

4.2.4. Summary

This section has provided a review of existing literature and shows that the question of access has been approached from a variety of disciplines and perspectives with little integration between them. The frameworks proposed are as parsimonious as possible, but at the same time they reflect the complexity of factors affecting access. The nature of the empirical test of these frameworks, however, ultimately depends on the availability of the necessary data and, as will be shown in subsequent sections, data for some variables has not been found or has not been deemed of sufficient quality to be included in the study.

[55] Muller, W. (1990) "Does education matter? Evidence from cross-national comparisons" Stanford, Centre for the Advanced Study in the Behavioural Science.
[56] Bassanini, A., S. Scarpetta and P. Hemmings (2001) "Economic Growth: The role of policies and institutions; Panel data evidence from OECD countries"[56] OECD Working Paper ECO / WKP (2001)9

4.3. Inter-group inequalities to be explored during the study

Exploring the personal characteristics that may be a barrier to access is relevant to policy-makers. As mentioned previously, whenever data availability permits, the project provides information on inter-group inequalities in access. These have been explored from previous surveys in some of the areas covered by this study, like the LFS, IALS and the CVTS2 for participation in adult education. The patterns of access inequalities selected for analysis within the context of this project were:

Table 4.1: Inter-group inequalities

Pre-primary education	**Tertiary education**	**Adult education and training**
Socio-economic background	Socio-economic background	Previous level educational attainment
Ethnic background	Ethnic background	Ethnic background
Gender	Age	Occupational status
	Gender	Occupation
		Firm size

Source: ECOTEC Research and Consulting Ltd.

Data for several of these variables is not available in international databases for which data is collected on a periodic basis. It has been possible to obtain data for some of them from non-periodic surveys. It has therefore been possible to analyse broad trends by means of these data, but not changes in patterns since Lisbon. A summary of data availability is provided in the next sub-section.

4.4. Data availability

4.4.1. Frameworks

The project team reviewed databases from EUROSTAT, EURYDICE, the World Bank, the OECD and UNESCO. Data collected was assessed for geographical coverage, availability of time-series and conceptual resonance. The data required for our frameworks in relation to the data selected was as follows:

Table 4.2: Access to pre-primary education: Suggested independent variables

Variable	*Indicator*	*Availability*
Start of the compulsory phase of education	Primary education starting age (World-Bank Ed Stats)	AMA
Pre-primary education as a statutory right	Pre-primary education as a statutory right (Eurydice: Eurybase)	AMA*
Employment growth	Annual percentual change in total employed population (EUROSTAT, long-term indicators, population and social conditions, employment)	AMA
Availability of part-time jobs	Persons employed part-time –share of total employment (EUROSTAT, long-term indicators, population and social conditions, employment)	AMA
Incidence of single parenthood	Lone parent households as a percentage of all households with dependent children (EUROSTAT Population and social conditions)	ABA
Incidence of dual earning households	Percentage of dual earner households. Couples with children (EUROSTAT)	ABA
Private costs of pre-primary education	Total expenditure on educational institutions and administration as a percentage of GDP – private sources (UIS)	ABA
Availability of parental leave	Availability of parental leave	NF
Cultural norms regarding the age at which children should start pre-primary education	Cultural norms regarding the age at which children should start pre-primary education	NF

Key: AMA: Adequate for multivariate analysis; ABA: Adequate for bivariate analysis; NF: Not found.

Key: * Assumption variable has been constant during the period of analysis.

Table 4.3: Access to tertiary education: Suggested independent variables

Variable	*Indicator*	*Availability*
Graduation rates secondary education	Percentage of the population aged 20 to 24 having completed at least upper secondary education (OECD, Education at a Glance)	AMA
Strength of the apprenticeship system	Technical/ vocational enrolment in ISCED 3 as percentage of total enrolment in ISCED 3 (OECD, Education at a Glance)	AMA
Demographic trends	Number of people between 20 and 24 years of age (EUROSTAT, Population and Social conditions)	AMA
Individual benefits from participation in tertiary education	Difference in unemployment rates between secondary education and tertiary education graduates (EUROSTAT, Population and social conditions, labour market, unemployment, LFS series)	AMA
Degree of social inequality	Percentage of the population at risk of poverty rate after social transfers (EUROSTAT, long term indicators, population and social conditions, living conditions)	AMA
Degree of public investment	Total public expenditure on education as a percentage of GDP at tertiary level of education (EUROSTAT)	AMA
Degree of social protection	Social Protection Benefit entitlements as a percentage of salary (OECD)	AMA
Financial support to students	Financial aid to students as a percentage of total public expenditure in education, at tertiary level of education (EUROSTAT, Population and social conditions, education and training)	AMA
Individual perceptions benefits access to higher education	Individual perceptions benefits access to higher education	NF

Key: AMA: Adequate for multivariate analysis; ABA: Adequate for bivariate analysis; NF: Not found.

Key: * Assumption variable has been constant during the period of analysis.

Table 4.4: Access to adult education: Suggested independent variables

Variable	*Indicator*	*Availability*
Regulation	Extent of participation on CET in works-council type bodies (W. Ok and P. Tergeist Improving Workers' Skills: Analytical Evidence and the Role of the Social Partners OECD Social, employment and migration Working Papers, 2003(10))	*AMA
Regulation	Intensity of collective bargaining on CET (W. Ok and P. Tergeist, 2003)	*AMA
Regulation	Joint governance of CET funds by social partners (W. Ok and P. Tergeist, 2003)	*AMA
Regulation	Training levy and earmarked contributions at national level (W. Ok and P. Tergeist, 2003)	*AMA
Regulation	Training levy and earmarked contributions at sectoral level (W. Ok and P. Tergeist, 2003)	*AMA
Level of technological change	Number of patent applications to the European Patent Office per million inhabitants (EUROSTAT Science and Technology)	AMA
National industrial profile	Percentage of expenditure in research and development performed by the business enterprise sector (OECD Main Science and technology indicators)	AMA
Learning organisation	Percentage of employees who think their main job involves learning new things (European Foundation for the Improvement of Living and Working Conditions, Working Conditions' Surveys)	ABA
Individual benefits	Individual benefits	NF
Degree of public investment	Degree of public investment	NF

Key: AMA: Adequate for multivariate analysis; ABA: Adequate for bivariate analysis; NF: Not found.
Key: * Assumption variable has been constant during the period of analysis.

For some variables, therefore, data of sufficient quality and coverage (both in terms of time-series and geographical coverage) were identified, and these could be employed in our multivariate analysis. Data on other variables did not render itself to multivariate analysis because its coverage (in terms of time-series or geographic coverage) was not sufficient and could only be employed in bivariate analyses. Finally, for some variables no data at all was found. Data on regulation variables for the analysis of access to adult education is from 2002, but has been assumed to remain unchanged during the period covered by the study. These data are presented and analysed in the following chapters of this report.

4.4.2. Inequalities

This subsection provides information about data availability for inter-group inequalities. There is a lack of data on educational inequalities collected on a periodic basis. The only inequality variable for which data is periodically gathered is gender, whereas no comparable data could be found on socio-economic or ethnic background. A detailed description of the inequality variables for which data was sought and their availability is provided in the tables below.

Table 4.5: Inter-group inequalities

PRE-PRIMARY EDUCATION	
Variable	*Availability*
Socio-economic background of the parents	NF
Ethnic background	NF
Gender	F (UNESCO)
TERTIARY EDUCATION	
Variable	*Availability*
Age	F (EUROSTAT)
Socio-economic background	NF
Ethnic background	NF
Gender	F (EUROSTAT)
ADULT EDUCATION AND TRAINING	
Variable	*Availability*
Previous level of educational attainment	F (EUROSTAT LFS)
Occupational status (full-time / part-time / unemployed)	F (EUROSTAT LFS)
Occupation	F (EUROSTAT LFS)
Gender	F (EUROSTAT LFS)
Age group	F (EUROSTAT LFS)
Firm size	F (CVTS2)
Ethnic background	NF
Socio-economic background	NF

Key: F= Found; NF= Not found

In all areas of education and training, there is a lack of comparable data on differences in access by socio-economic background and ethnic origin. Differences in access to adult education by socio-economic background, however, may be proxied by looking at data on occupation. There is no equivalent possibility in the cases of pre-primary and tertiary education. Data on inequalities in access by other characteristics (e.g. gender) are collected periodically for pre-primary and tertiary education. This is not the case for many areas of interest in adult education, where we have to rely on data from surveys that are not annual, and have been undertaken before the introduction of the Lisbon Strategy – the LFS ad hoc module on lifelong learning, IALS and CVTS2.

Chapter 4 Summary

This study seeks to map the performance of EU countries and their main OECD competitors in relation to access. In addition to this task, it also seeks to provide an insight into what factors determine participation. Building on existing literature, this chapter presents three analytical frameworks outlining macro-factors that have been identified to explain variations in levels of access to pre-primary, tertiary and adult education. The frameworks proposed are as parsimonious as possible, but at the same time they reflect the complexity of relevant factors.

The explanatory power of the selected (political, economic, sociological and systemic) variables is tested later on in the report, as far as data availability, which is lower than desirable for all frameworks, permits. The aim of the data analysis undertaken later on in the report is not to test the theories reviewed in this chapter. Rather, the theories are used as heuristic tools to establish the range of variables that can usefully be included in our analytical framework in order to try to explain, at least to some extent, what factors influence access, and guide our collection of data and policy recommendations.

In addition to monitoring overall levels of access, exploring personal characteristics that may be a barrier to access is relevant to policy-makers. Again, data limitations put boundaries on what can be analysed. The chapter has therefore outlined a range of inter-group inequalities that would be of interest to policy-makers and highlighted which of these will be reviewed in the study.

5. PRE-PRIMARY EDUCATION

5.1. Introduction

This chapter presents general data trends in access to pre-primary education in Europe during the last ten years. For a complete description of the coding of all variables employed in the study and their geographical and time coverage the reader is referred to Annex 3. The complete Excel and STATA datasets and syntax used for the analysis of access trends and determinants are available from ECOTEC on request.

5.2. Trends in access to pre-primary education

In our conceptual framework, we suggested that a holistic conceptualisation of pre-primary education should be adopted for this study, which required the inclusion of both formalised and non-formalised learning opportunities for children prior to their entering primary education. This implied that measures of learning in the household as well as pre-primary enrolment should be taken into consideration. After a review of existing international databases, the study team selected the following indicators for access to pre-primary education:

- Gross-enrolment ratios in pre-primary education
- The amount of time spent per day in the home, teaching, playing and talking with children.

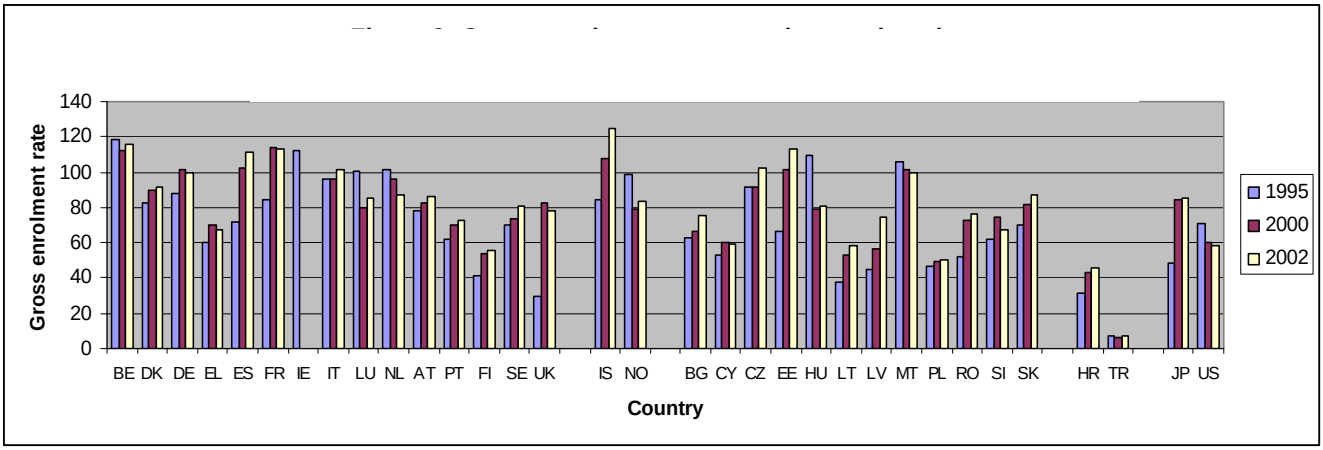
Data on gross enrolment ratios was obtained from the World Bank and details concerning the calculation of the rates can be found in section 5.1. EUROSTAT provides data on participation at ISCED levels 0 and 1 as a percentage of the population of children aged 3, 4, 5, 6 and 7, which may be also of interest to some readers. However, it does not provide data on gross (or net) enrolment rates in pre-primary education. Data on care of the child at home was obtained from the European Time Use Survey.

Looking at gross enrolments first, we can see from figure 2 that most EU countries are ahead of international competitors such as Japan or the USA. Trends since Lisbon (2000) are difficult to establish, since data is only available to 2002. However, looking at trends from 1995 we see that gross enrolments are increasing in a majority of EU countries. This trend is more pronounced in the New Member States and Candidate countries, which could be expected given their starting situation in 1995 –with lower gross enrolment rates than the old EU-15 and EEA countries. Whereas most EU-15 countries were around an 80% gross enrolment rate or above (the EMU[57] average increasing from 86% in 1995 to 100% in 2000 and 101% in 2002), most New Member States and Candidate countries clustered around the 60% mark during the period covered. However, it must be noted that participation rates in some New Member States, particularly Latvia, have increased substantially in the past decade. Currently in this country attendance of pre-primary education for children aged one to

[57] European Monetary Union

four is optional; however, it is mandatory for five- and six-year-olds, which is reflected in the statistics presented above.

Figure 5.1: Gross enrolment rate pre-primary education



Source: World Bank Ed Stats

In most countries, there are no special admission requirements for pre-primary education organised either in day-care or in schools – see our qualitative review for further details in Annex 5. However, it is important to note that demand for pre-primary education outstrips supply in nearly a third of the study countries, and this will impact on access rates. Ten European countries have waiting lists that hinder access to pre-school education (Austria, England, Germany, Iceland, Lithuania, the Netherlands, Norway, Portugal, Romania and Switzerland)[58]. The situation is similar in the US and Japan.

In countries where pupil admissions to publicly funded establishments is limited by the number of places available, institutions typically make use of some form of admissions criteria. For example, in Denmark which has around an 80% gross enrolment rate and demand for pre-primary education currently outstrips supply, one of the criteria for selecting students is if a student has any special pedagogical or social needs (other criteria are children of one parent families, children sent by another authority, children of parents working away from home and children whose brothers and sisters are already enrolled in the institution). Many other countries select children on the basis of social and financial criteria (e.g. Greece and the US); on the basis of families coming from disadvantaged areas (e.g. Ireland and France); by age group (e.g. Poland and France); or through a judgement based on the personal attainment of the prospective student, established through entrance tests (e.g. Austria).

Apart from using various types of admissions criteria, countries have also used other methods to tackle waiting lists. Japanese authorities have started to pilot establishments that provide integrated child care and pre-primary services. Some countries have introduced special programmes (e.g. Head Start, Sure Start, Breaking the Cycle) aimed at children from lower socio-economic groups to ensure provision is available for those who need it the most. The

[58] European Agency for Development in Special Needs Education (2003): *Special Needs Education in Europe – Thematic Publication.* Eurydice.

Spanish authorities have established a significant number of new pre-primary schools in urban areas, mainly because of the growing number of immigrants concentrated in these districts. Over the past 10 years, a number of countries have also introduced new policies and innovative programmes to reach all geographical areas. Small villages are often being grouped together into consortia or inter-municipal nursery schools to ensure a better management of the services and an efficient use of available resources (e.g. in Cyprus, France and Spain).

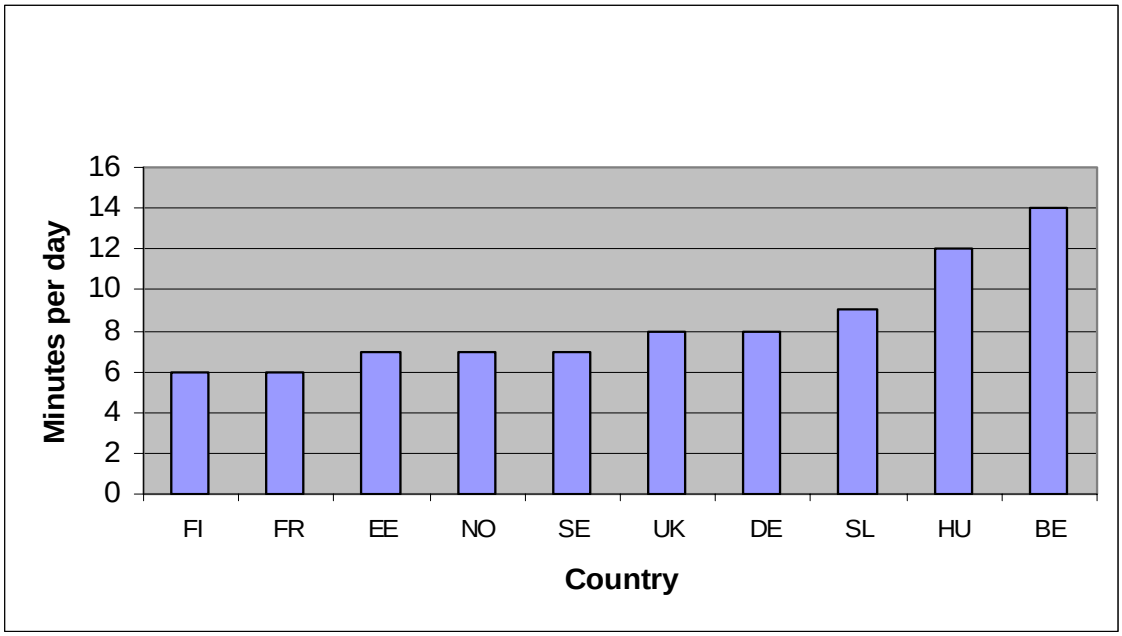
Alongside public provision, private providers make a significant contribution to pre-primary access opportunities in many countries. Indeed, in some countries, such as the US, private provision is increasingly prevalent due a lack of adequate state provision[59]. The prevalence of privately funded providers has also increased in some European countries such as Germany (particularly in Eastern Germany) where approximately 70% of kindergartens are run by independent bodies such as churches, voluntary and charitable associations. Nearly 60% of kindergartens in Japan are private, while 40% of children in Italy attend non-state institutions. The relationship to access, however, is clearly not straightforward since, although the US and Japan have relatively low rates of access, Germany and Italy have high access rates.

Regarding the second indicator selected for access to pre-primary education, access to learning in the household, an indicator from the European Time Use Survey was selected. This provides a single observation per country and for only a limited number of countries. It is necessary to mention therefore that whilst data on gross and net enrolment rates in pre-primary education establishments is collected periodically and has a good coverage of countries through time, there is little information on access to pre-primary learning at home.

The results from the time use survey are presented in the table below. The table shows that Belgium led access to learning in the household, with each adult between 20 and 74 years of age investing on average 14 minutes per day in the household teaching, playing and talking to children – activities that will largely result in learning - whereas in Finland and France only 6 minutes were invested. This difference would result in approximately 2 extra weeks of learning per child per year in a household with two adults in Belgium compared to these other two countries, which is a significant amount of additional learning time.

[59] OECD: Early Childhood Education and Care in the USA.

Figure 5.2: Minutes per day of the year per adult in the household teaching, playing and talking with child



Source: European Time-use Survey

The next section presents an analysis of the determinants of variation in access to pre-primary education in the countries under review.

5.3. Data analysis

5.3.1. Bivariate analysis

As mentioned in the previous chapter, a range of variables in our framework for pre-primary education were either not found (parental leave and cultural norms regarding the adequate starting age for pre-primary education) or were unsuitable for multivariate analysis. For those indicators for which data was not suitable for multivariate analysis we undertook bivariate analysis with the results shown in table 5.1.

Table 5.1: Correlation coefficients between access to pre-primary education and selected framework variables

Dependent variable	Independent variable[60]	Correlation coefficient
Gross enrolment rates pre-primary education	Private expenditure in education as a percentage of GDP	-0.0751
Gross enrolment rates pre-primary education	Level of dual earning households	-0.1093
Gross enrolment rates pre-primary education	Proportion of lone parent households	-0.1395

Source: ECOTEC Research and Consulting Ltd.

The null hypothesis in all cases is that there no relation between the dependent and independent variables. The relationship between both variables was tested by looking at the correlation coefficient[61] between each pair of variables. As we see, the results showed a very weak and negative relationship between the dependent variable and the suggested independent variables in all cases, which means that a very small proportion of the variation in enrolment rates in pre-primary education is explained by the independent variables tested.

The negative but *weak* relationship was expected in the case of private expenditure –e.g. as the proportion of the cost of pre-primary education increases for households, they will be more willing to consider alternatives to pre-primary education in educational establishments. Only a few of the study countries provide either fully free or partly free pre-primary education. Belgium and Luxembourg are the only countries where participation in pre-primary education is free of charge for everyone in both public and private establishments. Access rates are very high in Belgium, but less so in Luxembourg. Many other countries have free public pre-primary schools, whereas enrolment fees are often payable in the private sector. Denmark, Germany, Estonia, Cyprus, Austria, Slovenia, Sweden, Iceland and Norway do not have free public pre-primary schools[62]. Means-tested pre-school fee systems are prevalent across the study countries, including Austria, Finland, Sweden, Portugal and Romania. In the United Kingdom and the United States the pre-primary education system relies heavily upon contributions from parents[63]. In fact, there is a slight trend driven by the public sector towards a greater reliance on privately-delivered but publicly-financed providers in the OECD countries, in order to reduce costs for municipalities and provide parents with more diverse options[64]. So far, therefore, there would appear to be *no strong* direct relationship between free pre-primary education and participation rates as high participation rates are apparent in some countries where the admission is fee-paying, and relatively low in

[60] For additional information on independent variable definitions and sources see table 2 on section 4.4.1 of this report.
[61] The correlation coefficient can be thought of as the extent to which we can predict the value of a variable once we know the value of the other one. The correlation coefficient can range from -1 to +1. These two extremes mean complete negative correlation (-1) and complete positive correlation (+1). If we estimated the correlation coefficient between a variable and itself, for example, we would always obtain a correlation coefficient equal to +1. A value close to 0, moreover, will mean that the relationship between the two variables is very weak.
[62] EURYDICE/EUROSTAT: Key Data on Education in 2005.
[63] Although in the UK the fees are heavily subsidised by the state.
[64] OECD: Starting Strong, Early Childhood Education and Care. 2001.

some where it is free (at least in the public sector), as also recently advanced by EURYDICE[65].

Moreover, countries have adopted a range of financing mechanisms to improve affordability including direct funding, fee subsidies and tax relief. While most countries seek to expand supply and raise quality through direct subsidies to providers (supply side measures), some favour indirect demand driven measures (fee subsidies and tax relief to parents). The opinions on the best policy approaches to solving this matter differ very strongly, in spite of the fact that both approaches produce equity concerns, with the OECD[66] recently preferring a combined approach: supply side investment to the full range of providers in exchange for guarantees of improved access, with quality being strengthened by demand-side subsidies to make programmes more affordable for those from lower-income families.

In terms of our other two independent variables, related to earnings and lone parenthood, the negative relationships that were found were not expected. We expected, for instance, that a greater level of lone parent households would result in higher levels of access to pre-primary education, since lone parents would need to seek work, unless they could rely on benefits. The negative relationship is likely to be due therefore to other sociological processes. For instance, lone parents may require higher levels of pre-primary education, but given the costs involved they may rely more on family support and childcare than other types of households, weakening the relationship between both variables. We would also have expected enrolment rates to be higher where the proportion of dual earning households was also high, since this makes caring for children at home more difficult. Again, other variables may be intervening in this case, such as support from other members of the family or the frequency of part-time employment for at least one of the members of the household.

[65] EURYDICE/EUROSTAT: Key Data on Education in 2005.
[66] OECD: Starting Strong, Early Childhood Education and Care. 2001.

5.3.2. Multivariate analysis

We saw in the previous chapter that for the following independent variables sufficient observations were available for inclusion in a multivariate analysis:

Table 5.2: Expected relationship between access to pre-primary education and framework variables

Dependent variable	Independent variable	Expected relationship
Gross enrolment rates pre-primary education	Starting age of compulsory education	+
Gross enrolment rates pre-primary education	Education as a statutory right	+
Gross enrolment rates pre-primary education	Availability of part-time work	+
Gross enrolment rates pre-primary education	Employment growth	+

Source: ECOTEC Research and Consulting Ltd.

As showed in the table, the expected relationship of all independent variables with the dependent variable is positive, which means that growth in the independent variable would be expected to be accompanied by growth in the dependent variable.

For our multivariate analysis in this and other chapters we employed pooled data ranging both across countries and through time, which provided enough observations to facilitate the quantitative analysis. There are, however, some issues that complicate the construction of a multiple regression model when using pooled data, such as contemporaneous correlation of the errors, autocorrelation, and heteroscedasticity. We tested our data for these potential complications and found them to exist in this data. Appropriate techniques therefore were deployed to allow for these in our models[67].

[67] Additional information on the reasons to use pooled data for this study and data tests can be found in Annex 6 of this report. Full tests are available from ECOTEC upon request.

The results for pre-primary education were as follows:

Table 5.3: Access to pre-primary education regression results

Variables included in the model	Regression results
Starting age of compulsory education	-9.078843 ***
	(2.75)
Statutory right	-9.554369 ***
	(1.02)
Employment Growth	0.271603
	(0.27)
Availability of part-time work	0.3279138 **
	(0.15)
N= 110; R-squared = 0.8376	

***= significant at the 99% confidence level; ** = significant at the 95% confidence level; * = significant at the 90% confidence level

Our results show that the relationship between starting age, statutory right and part-time are statistically significant at better than the 95% level of confidence. In the case of starting age and statutory right, the relationship is significant at better than the 99% level of confidence. In contrast employment growth was found not to be significant even at the 90% level.

The relation between enrolment rates and both starting age and statutory right is negative and substantial. Increasing in one year the starting age of primary education reduces the gross enrolment rate in pre-primary education by 9%. Equally, making pre-primary education a statutory right reduces the gross enrolment rate by 9% in our model.

The negative relationship between the starting age of compulsory education and access to pre-primary education may be explained because of the costs of pre-primary compared to primary education. Pre-primary education is in most countries more expensive for parents than primary education. As such, when participation in pre-primary education is shorter (since the starting age of compulsory education is lower) parents may be more willing to pay for it without looking for alternative arrangements than when the duration of pre-primary education is longer.

Where pre-primary education is a statutory right, the country has committed to provide a guaranteed place for each child. In these countries, admission to pre-primary education is assured, allowing parents more flexibility in choosing a provider. The negative relationship between pre-primary rates of enrolment and statutory right may be driven by the fact that pre-primary education is normally a statutory right for children of only certain age groups. Moreover, legislation in this field has been introduced only in the past five years in many of the countries that currently have it, and, as mentioned, the new laws only provide guaranteed places for children of *certain ages* in most cases, and do not necessarily lead into universal participation. Only Spain, Belgium and Italy displays a situation where all children of pre-school age are engaged in pre-primary education, while for example in Finland, where local authorities are required to provide a place for every child and where pre-school fees are

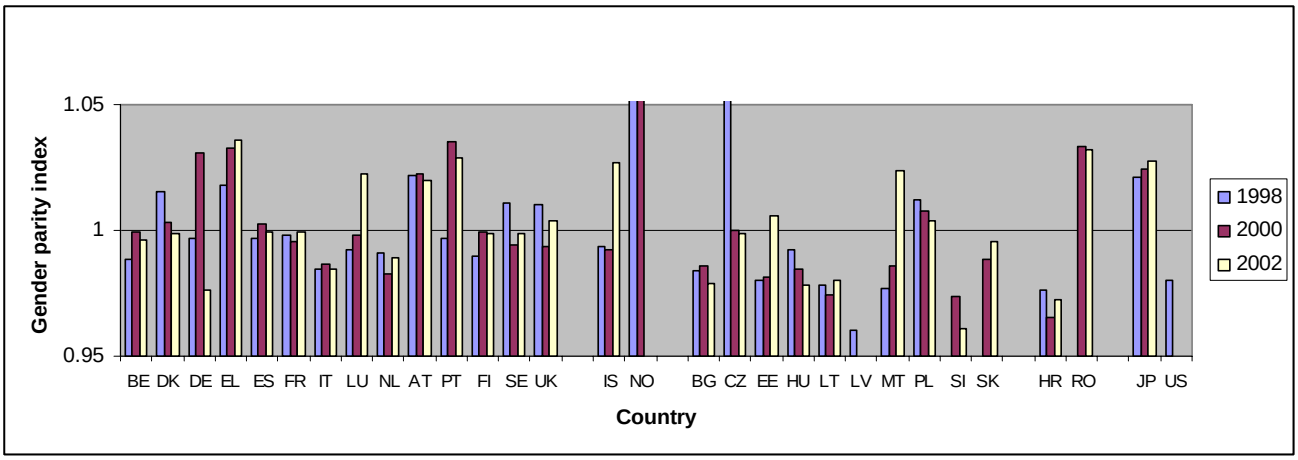
means-tested[68], participation rates still remain behind the European average. Finally, it may be that in some countries pre-primary education as a statutory right has been recently introduced precisely to address low levels of pre-primary education, thus "creating" a negative relationship between both variables.

By contrast to the two variables above, part-time employment is positively correlated to net enrolment rates. An increase of 1% in part-time employment increases enrolment rates in pre-primary education by 0.3%. Indeed, in many of the study countries, pre-primary education systems are currently being reviewed and reforms are being adopted or are being planned due to growing female labour force participation, which is often part-time for recent mothers and is increasing demands on the existing systems.

5.4. Inter-group inequalities

As mentioned above, the only data relating to inter-group inequalities that could be found for pre-primary education was on gender differences in net enrolment rates. The graphic below shows the gender parity index in access to pre-primary education produced by the UNESCO Institute of Statistics. In the index, a score of one indicates that there is perfect equality in access to pre-primary education by individuals from both sexes. A figure above one indicates that a higher proportion of females than males access pre-primary education. A figure below one indicates that more males than females access pre-primary education.

Figure 5.3: Gender parity index net enrolment rates pre-primary education



Source: UNESCO Institute of Statistics Database

[68] Excluding the final year of pre-primary education which is provided free of charge for all.

We see in the graph that there are certain differences in the level of access to pre-primary education by gender, although these are in general rather low – always below 10%. In most countries the general trend is that there is a slightly higher proportion of males accessing pre-primary education than females. This trend is particularly strong in Southern European countries and some Eastern European countries. Higher participation of males in the educational system is reversed later on in the educational ladder - see the review of gender inequalities in access to tertiary education below. Although the causes for such, relatively small, variation in access to pre-primary education by gender are difficult to pin down, they may be to do with the demographic characteristics of different countries, or cultural norms.

Chapter 5 Summary

Gross enrolment rates in pre-primary education in most EU countries are ahead of international competitors such as Japan and the USA. Trends since Lisbon are difficult to establish, since data is only available up to 2002. However, looking at trends since 1995 we see that gross enrolment rates in pre-primary education are increasing in a majority of EU countries. This trend is more pronounced in the New Member States and Candidate countries, which could be expected given their low access rates in 1995.

Some supply problems, however, persist: ten European countries have waiting lists that hinder access to pre-school education (Austria, England, Germany, Iceland, Lithuania, the Netherlands, Norway, Portugal, Romania and Switzerland). The situation is similar in the US and Japan. As a result, private supply is expanding in many countries.

Regarding learning in the household, Belgium was the EU leader, with each adult between 20 and 74 years of age investing on average 14 minutes per day in the household teaching, playing and talking to children whereas in Finland and France only 6 minutes were invested. This difference would result in approximately 2 extra weeks of learning per child per year in a household with two adults in Belgium compared to these other two countries, which is a significant amount of additional learning time.

When testing for determinants of levels of access to pre-primary education we saw that the relationship between enrolment rates and both stating age of compulsory education and pre-primary education as a statutory right is negative and substantial. Increasing in one year the starting age of primary education reduces the net enrolment rate in pre-primary education by 9% in our model specification. Equally, making pre-primary education a statutory right reduces the net enrolment rate by 9%. By contrast part-time employment is positively correlated to net enrolment rates. An increase of 1% in part-time employment increases enrolment rates in pre-primary education by 0.3%.

Regarding access inequalities we saw that there are certain differences in the level of access to pre-primary education by gender, although these are in general rather low –always below 10%.

6. TERTIARY EDUCATION

6.1. Introduction[69]

In our conceptual framework we mentioned that access to tertiary education could encompass two different aspects, enrolment or graduation. As mentioned above, our preferred approach is to use the former and hence the basis of our analysis in this section is data on gross enrolment rates for ISCED levels 5 and 6. Data is from the World Bank Ed Stats and includes both sexes.

It is worth mentioning that EUROSTAT has some indicators on entrance into tertiary education, but no gross (or net) enrolment rates. The most closely related indicator it produces to our definition of access is: 'Entrants at theoretical starting age in ISCED level 5 as % of all persons of the corresponding age group (available for the years 1998 to 2003'. However, this indicator is less suited to the purposes of our study than net or gross enrolment rates since it does not adopt a lifelong learning perspective – it takes into account only people who go straight into tertiary education after their upper secondary education so that, for instance, people who had a gap year or mature students would not be included in it. This indicator is complemented in EUROSTAT's databases with an indicator on 'Entrants at the theoretical starting age in ISCED level 5 as % of all entrants in ISCED level 5', to show the total volume of entrants, but again the figures produced are less easy to interpret intuitively than gross and net enrolment rates.

Finally, EUROSTAT also produces raw figures on new entrants to tertiary education, 'Number of new entrants by level of education, programme destination, sex and age '. It is these figures that can be used to calculate net and gross enrolment rates – for further details see Annex 6.

In our conceptual framework we also argued that it is necessary when looking at access to tertiary education to have some measure of differences in access to the different types of programmes encompassed by it, namely 5A, 5B and 6 type programmes. This is also done below, using data from EUROSTAT long-term indicators on population and social conditions.

[69] For a complete description of the coding of all variables employed in the study and their geographical and time coverage the reader is referred to Annex 3. The complete Excel and STATA datasets and syntax used for the analysis of access trends and determinants are available from ECOTEC on request.

The chapter follows the following structure. First it explores trends in access to tertiary education. Second, it provides a multivariate analysis of the determinants of access to this kind of education, although this analysis is limited by problems of correlation between several of the selected independent variables. Third, the chapter provides a review of inequalities in access by gender and age.

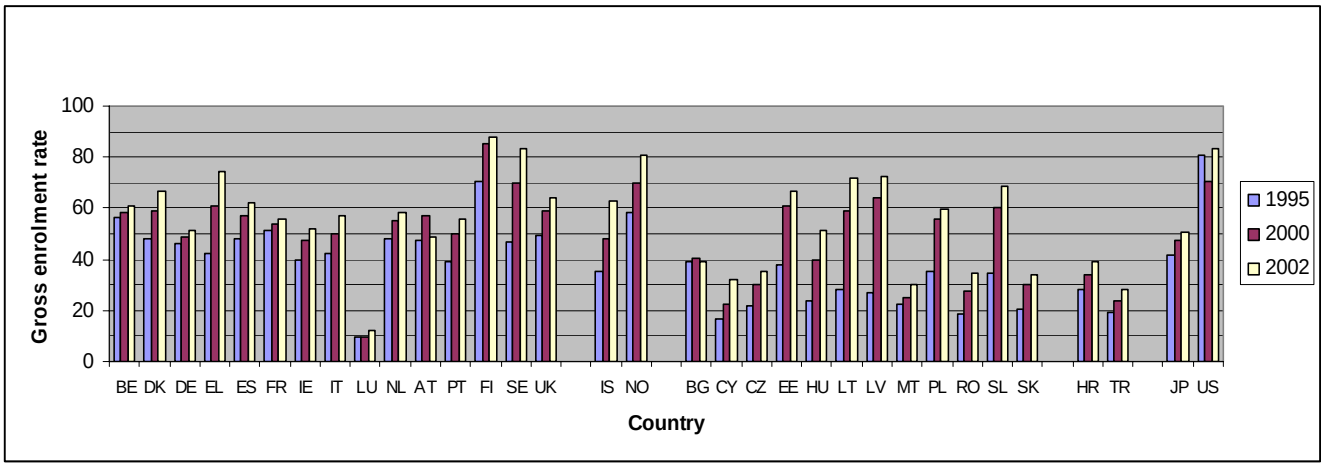
6.2. Trends in access to tertiary education

6.2.1. Trends in access to tertiary education

The figure below shows gross enrolment rates for tertiary education in the countries under review. It is important to note that the figures are different and higher than those normally presented at national level for instance for higher education enrolment since our data includes higher education and other tertiary education (e.g. some types of further education and other university and non-university delivered tertiary education) and we report gross enrolment rates – whereas national statistics tend to report net enrolment rates or percentages of the age cohort going into higher/ tertiary education.

The figure shows that during the period covered by the study, EU-15 countries had gross enrolment rates in tertiary education that varied between 40% and almost 90%, which represents a very high variation – with Luxembourg presenting even lower figures at around 10%. Differences in access to tertiary education between leaders (Finland, Sweden) and laggards (such as Luxembourg, Malta), moreover, have not shortened during the seven year period covered in our data, contrary to what could be expected. This lack of catching-up is mainly due to a general trend towards increasing participation rates in tertiary education in virtually all EU countries, with the exception of Austria and Bulgaria. As such, the increase in access has taken place not only in some countries which exhibited low access rates in the mid-1990s, such as Greece, but also in other countries that already had high participation rates, like Denmark and Finland. The EMU average grew from 47% in 1995 to 53% in 2000 and 57% in 2002.

Figure 6.1: Gross enrolment rate tertiary education



Source: World Bank Ed Stats

Participation rates in New Member States and Candidate countries are in general lower than those of EU-15 countries, and their difference in participation with the old EU-15 countries is even more marked than in pre-primary education. Yet their trend towards increased participation is also strong. Whereas in 1995 gross enrolment rates in tertiary education in these countries ranged from 20% to 50%, in 2002 they ranged mostly between 30% and 70%. Again, we see that expansion in access is not related to the initial position of countries in the first year of reference, since countries that were already performing at higher levels in 1995 – such as Latvia and Lithuania- are amongst those who have experienced a higher absolute increase in participation in the period up to 2002. Participation rates do not seem to relate either to whether an upper secondary education credential alone is sufficient to gain access to tertiary education (such as in Germany, France, Italy or the Netherlands amongst others), whether a special entrance exam needs to be passed (such as in the cases of Greece and Spain) or whether set numbers of places are available (like in the UK or Sweden).

It is also worth noticing that enrolment figures have increased substantially more since Lisbon than in the period 1995-2000 in most countries. Access trends in tertiary education in EEA countries, Japan and the USA tell a similar story, with heavy increases after 2000. This may suggest structural reasons for that increase, rather than an impact of the 2000 Lisbon Strategy on national policies in education and enrolment patterns, although these may still have had some effect in EU countries. Indeed, the USA witnessed a decrease in participation rates during the period 1995-2000, but a pronounced increased after 2000. It is worth noticing the low gross enrolment ratio in tertiary education in Japan and Iceland. By contrast, Norway and the USA both exhibit very high participation rates, well above the EU average, but still below the European leaders Finland and Sweden.

For all EU countries to reach the rates of participation of the highest will require lifelong strategies that combine increasing percentages of the younger age-cohorts going into higher and further education with attracting adult learners into tertiary education. Both areas are a major challenge for Europe, but critical factors for its future competitiveness in global markets.

When considering the issue of access to education in the tertiary sector in the EU it is currently of central importance to consider the Bologna process and its attempt to create an open European higher education area (EHEA), a framework that is expected to enable closer cooperation between higher education institutions, facilitate student and staff mobility and increase both the competitiveness of Europeans in the world labour market and the attractiveness of European higher education in the world. The Bologna process is aligned to the broader framework of the Lisbon objectives and seeks to make the higher education systems in Europe move towards a more transparent system whereby the different national systems would use a common framework based on three cycles - Degree/Bachelor, Master and Doctorate.

In this respect, the Bologna Follow-up Working Group has prepared a report70 that shows that adoption of the two-cycle degree system is well under way in Europe. Already by 2005, at least 55% of countries have the system in place on a wide scale, with a further 21% having it in place in a more limited capacity. More importantly, the percentage of students covered by the two-cycle degree system is also increasing. In 17 countries, 81 to 100% of students were already enrolled in the two-cycle system in 2005, and in six countries, 51-80% were enrolled in it. A further seven countries had 25-50% enrolment, and ten countries had 1-24% enrolment. In only three countries were no students enrolled in the two-cycle system in that year. Access between cycles is available for all students in 44% of the participating countries, while some minor structural or procedural problems persist in a further 28% of countries.

Unfortunately, the Bologna Follow-up Working Group stocktaking exercise did not gather information on the actual level of access and transfer of students from the first cycle to the second cycle. So on the one hand it seems undeniable that progress has been made, at the same time, however, new structures in HE have in most cases not been in place for very long and hence it is too early to draw conclusions on gains in access to HE due to the Bologna process, in particular since our data on gross enrolment rates covers until 2002. However, it could be expected that the two cycle courses will make First Degrees shorter in some European countries, thereby lowering costs and making them more attractive to students and reducing drop-outs. It is true that some countries which had a structure closer to that to be generalised through the Bologna process, such as the UK, Denmark and some Eastern European countries have exhibited higher levels of access to tertiary education than countries in which long degrees were generalised, such as Spain, Italy or Germany.

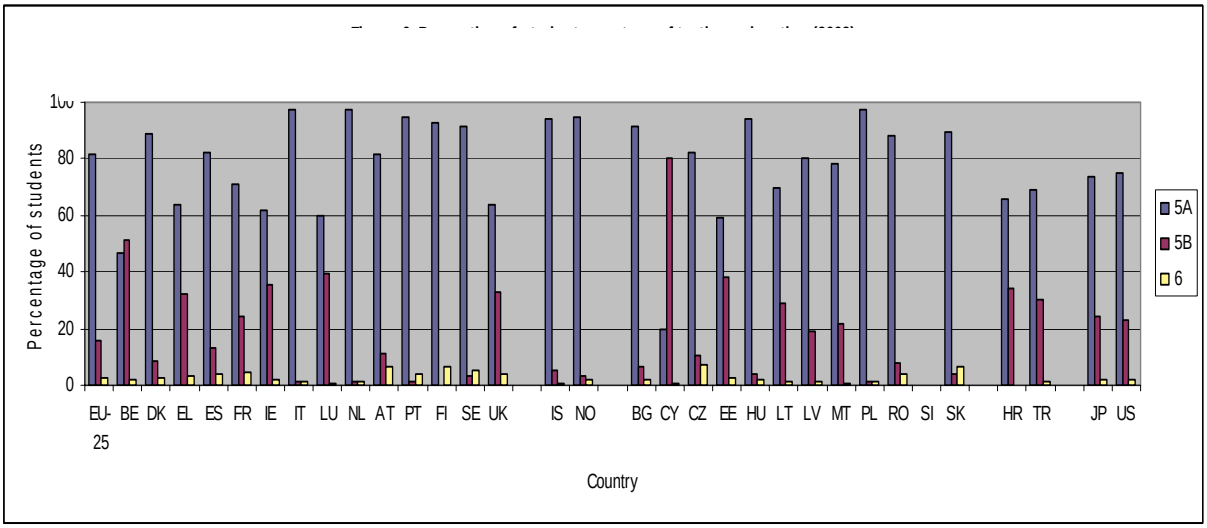
6.2.2. Trends in participation in different strands of tertiary education

As mentioned in our conceptual framework, given the diversity of tertiary education courses it is important to examine data on participation in the different types of programmes it covers in order to have a clear view of the situation and trends in each country. This section provides data on the proportion of tertiary education students enrolled in three different types of programmes (5A, 5B and 6 type programmes).

[70] Bologna Process Stocktaking (2005), Report from a working group appointed by the Bologna Follow-Up Group to the Conference of European Ministers responsible for Higher Education, Bergen, 19-20 may 2005.

The graph below, which provides data for 2003, shows that 5A type of tertiary education is by far the most prominent type by proportion of students, and makes up half or more of the tertiary education students in all countries but Belgium and Cyprus. On average, 82% of students in tertiary education in the EU-25 are enrolled in 5A programmes.Trends, however, are unclear. Whereas some countries have increased the proportion of tertiary education students in 5A type programmes very strongly in the last 5 years (such as Finland, Denmark and the Czech Republic in Europe, but also Japan), other countries have seen a decrease in the proportion of students under this strand (as in the UK, Estonia and Latvia). The majority of countries, however, exhibit a relatively stable proportion of students in 5A programmes, which has not varied markedly since 1998.

Figure 6.2: Proportion of students per type of tertiary education (2003)



Source: Own calculations from EUROSTAT data

The extreme concentration of students in 5A type of programmes (in particular in Italy, Netherlands, Finland, Portugal, Sweden, Iceland, Norway, Bulgaria, Hungary, Poland, Slovak Republic) may suggest that there is still scope for greater diversification and choice in tertiary education – which is somewhat contrary to the much vaunted trend towards much greater diversification of tertiary education institutions in recent years. It may also reflect the fact that much still remains to be done still in terms of enhancing the credibility and value attached to vocational tertiary education so that demand for this type of course increases. Countries which exhibit more of a balance between 5A and 5B programmes are those with a dual apprentice system such as Austria and Germany, and Belgium, Slovenia, Estonia, Japan.

The Czech Republic, the Slovak Republic, Sweden, Finland, Austria and France are the leaders in terms of the proportion of tertiary education students at ISCED level 6 – advanced research degrees, doctorates. In these five countries the share of tertiary education students enrolled in type-6 programmes is at or above 5%. The proportion of type 6 students is also high in Portugal, UK and Romania at around 4%. These European leaders have a rate of students at level 6 that is around twice the rate of most EU countries, which gives an idea of the strong gap between different countries in this area. However, it is interesting to note as well that the proportion of students enrolled in type 6 programmes in most European countries

is above the rate in the USA and Japan. In the case of the USA this may be due to the very diverse nature of its tertiary education system, which implies that many of its institutions are not allowed to provide PhD programmes. It is also the case that doctorates in the USA take much longer than in most European countries, often lasting more than 5 years and that many international students go to study for doctoral degrees to US institutions. These general trends, however, may conceal some more complex patterns by field – e.g. the proportion of PhD students in sciences and engineering tends to be higher in the USA than in other countries.

The next section looks more systematically at the variables that determine differences in levels of access to tertiary education in EU countries.

6.3. Data analysis

Our analytical framework for this study suggested that the following variables for which sufficient observations were available for multivariate analysis[71] could hold a systematic relationship with access to tertiary education:

Table 6.1: Expected relationship between access to tertiary education and framework variables

Dependent variable	Independent variable[72]	Expected relationship
Gross enrolment rates tertiary education	Graduation rates in secondary education	+
Gross enrolment rates tertiary education	Student enrolment	+
Gross enrolment rates tertiary education	Strength of the apprenticeship system	-
Gross enrolment rates tertiary education	Demographic trends	-
Gross enrolment rates tertiary education	Individual benefits from participation in tertiary education	+
Gross enrolment rates tertiary education	Degree of social inequality	-
Gross enrolment rates tertiary education	Degree of social protection	-
Gross enrolment rates tertiary education	Degree of public investment in tertiary education	+
Gross enrolment rates tertiary education	Degree of financial support to students	+

Source: ECOTEC Research and Consulting Ltd.

[71] No variable in the framework for access to tertiary education had only enough observations for bivariate analysis. The variables had either enough observations for multivariate analysis or were not found.
[72] For additional information on independent variable definitions and sources see table 3 on section 4.4.1 of this report.

Correlation analysis undertaken on these variables prior to our multivariate analysis detected a high degree of correlation among several of them (the multicolinearity problem). Analyzing a model with all these variables would be problematic as the estimates would be inefficient and our tests of statistical significance would be inaccurate.

We found that the strength of the apprenticeship system, student enrolment, the degree of social inequality, graduation rates in secondary education, the degree of public investment in tertiary education, and our measure for demographic trends are highly colinear. Given the high relationship among these independent variables, we decided to only keep in the analysis those that minimize the multicolinearity problem while maximizing the number of observations available for analysis: student enrolment and the degree of public investment in tertiary education (together with the degree of financial support to students which has no colinearity problem). The analysis produced the results reported in the table below:

Table 6.2: Access to tertiary education regression results

Variables included in the model	Regression results
Student enrolment	1.68e-06 *** (3.54e-07)
Public investment in tertiary education	21.60672 *** (2.52)
Financial support to students	-.1270914 * (0.067)
N=110 ; R-square = 0.7304	

***= significant at the 99% confidence level; ** = significant at the 95% confidence level; * = significant at the 90% confidence level

The regression results show that all the independent variables are significant at better than the 90% confidence level. While student enrolment and the degree of public investment in tertiary education are significant at better than the 99% level of confidence, the degree of financial support to students does not reach significance at the more traditional 95% level. As expected in our initial hypotheses, both student enrolment and the degree of public investment in tertiary education are positively related to tertiary education access.

Europe has one of the world's largest, mainly publicly funded, higher education systems. Around 4,000 institutions cater for approximately 16 million students[73]. More than 75% of these students study at public institutions. Our results show that public investment is crucial for access. An increase in public expenditure equivalent to 1% of GDP would mean a 21% increase in gross enrolment rates in tertiary education. This is a crucial and clear finding that suggests that public investment in tertiary education is a key determinant of participation in tertiary education, which was particularly robust in the sensitivity analysis we conducted. Whereas public expenditure in tertiary education as a percentage of GDP has increased in most EU countries in the period 1999-2002, for which data is available, it is worth noting that it has actually decreased in a relatively large number of countries, such as Austria, Belgium, Estonia, Finland, France, Latvia, the Netherlands, Portugal and particularly Bulgaria, where

[73] Wende, M. van der, R. Middelhurst (2003), Cross-border post-secondary education in Europe, OECD, Paris.

the decrease has been above 0.5% of the GDP for that period. Iceland, Poland, Hungary, Denmark and Cyprus, by contrast, experimented the highest increases in public expenditure. Finland, Denmark and Sweden are the countries with higher levels of expenditure from the 33 covered in this review, with levels above 2% of the GDP in the period 1999-2002, whereas Bulgaria, Croatia, Romania Slovakia, the Czech Republic and Italy had the lower rates of expenditure in 2002, below 0.9%. Japan and the USA spent 0.54% and 1.40% of their GDP, respectively, for that year.

However, public institutions do not need to go alone. Especially in East European countries, private education has been growing rapidly in recent years since the demise of communism. Traditional universities and colleges suffer from insufficient capacity and sometimes also quality. In the Czech Republic, for instance, the Higher Education Act of 1998 enabled the establishment of private HE institutions. Since then the number of state-approved private institutions has grown and stood at 36 at the end of 2004. State approval is only granted when some strict scientific and educational criteria are met. Similar developments have taken place in Poland since the 1990s, where currently the number of non-state HE institutions largely exceeds the number of state-run institutions. Both countries, the Czech Republic and Poland, have experienced strong growth in access to tertiary education in the last decade, as already shown in 5.2.1.

Financial support to students is negatively correlated with access, but the relationship is only significant at the 90% level, which should make us cautious about establishing strong conclusions about the results. A possible interpretation of this finding is that public funding of tertiary education is important, but would not necessarily need to be directed specifically to general financial aid to students. Targeted funding for poorer students, coupled with expenditure on other items (e.g. teaching staff or capital expenditures that increase the quality and relevance of the courses and therefore the employability of graduates) may be more efficient expenditure to increase participation rates. This may be so because fees are still small in Europe if compared, for instance, to the US. Public subsidy of students for financing tertiary education is the traditional approach for supporting higher education in most countries. This is the case because tertiary education in most EU countries is considered a public good and it is thus argued that it should not be restricted by economic factors. There is, however, a trend towards increasing cost-sharing in several countries, due to budgetary constraints and the increasing volume of people going into tertiary education and to generate additional funds for students from lower socio-economic backgrounds.

However, even where tuition fees have been introduced, they contribute only a small proportion of the funding needs of higher education. In most European countries the subsidy rate for higher education (defined as the share of direct public expenditure in educational institutions and total public subsidies to households and other private entities in total sources of funds) is above 90%[74]. In other words, higher education is provided free at the point of delivery – see Annex 5 for further details. This finding would therefore be consistent with other studies which have questioned the impact of tuition fees at their current level on access

[74] Debande, O., Student Finance Schemes: a market assessment, European Investment Bank (EIB), June 2003

to tertiary education in Europe[75]. As some have suggested, there are many complex social issues that influence a decision to attend university; tuition fees is just one of them[76]. The studies that do report an impact of tuition and student support on access show that students from lower socio-economic backgrounds tend to choose shorter, cheaper, less prestigious, and less risky educational opportunities[77]. This would locate debates on the impact of tuition fees in the domain of studies of social justice, rather than in the domain of access studies. Great increases in fees "US-style", however, could in our view have harming effects on access to tertiary education in Europe.

Finally, it is important to highlight that the "objective costs" of tertiary education, whilst important, are not all. How people perceive these is equally important in shaping their behaviour. Some programmes, like "Aim Higher" in the UK, are trying to increase levels of access by changing the perception of people from less privileged backgrounds regarding the costs and benefits of higher education.

An alternative explanation for the negative relationship between financial aid to students and access is that financial aid to students has been introduced to a greater degree in those countries with low participation rates, precisely to address the problem of low participation, creating a negative relationship between the two variables in our model. Also, it may be that loans (more frequent in north-west European countries) are broadly as effective a financial mechanism as grants (prominent in Greece, Spain, France, or Ireland in the late 1990s), but are cheaper and can be made available on a wider basis, encouraging access at lower prices for public bodies – hence the negative relationship between both variables. The response to these issues could be of great importance in guiding policy-making further, and could be explored further through comparative historical analysis of access and financing trends in individual countries, a task which is beyond the scope of this project.

Finally, as expected, an increase in the number of students in tertiary education also increases gross enrolment rates. Therefore gross enrolment rates do not increase only due to people taking more than one course; when gross enrolment rates are higher it is also the case that the number of students in tertiary education is also higher.

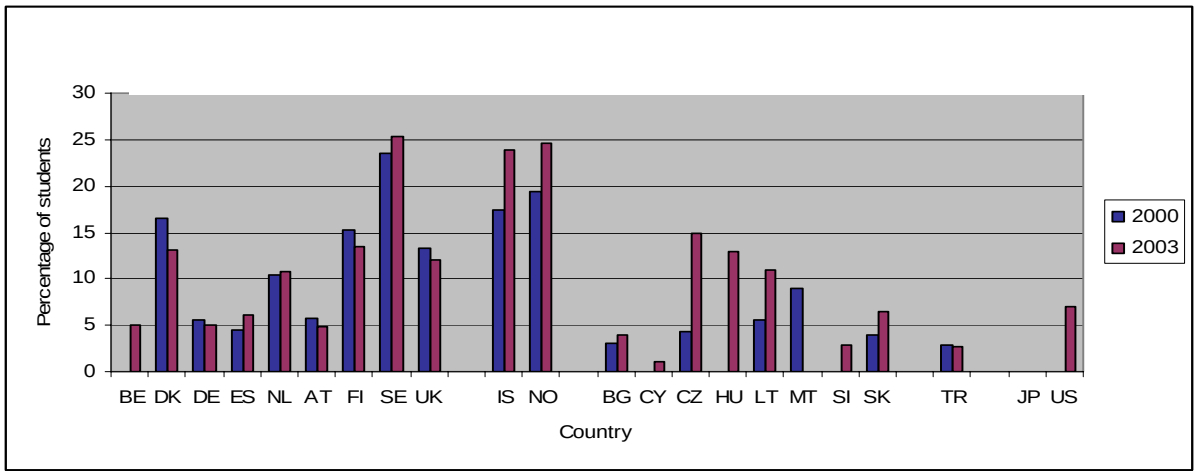
[75] Kaiser, F., H. Vossensteyn, J. Koelman, Public funding of higher education.A comparative study of funding mechanisms in ten countries. CHEPS-Higher education monitor. Center for Higher Education Policy Studies. Enschede, november 2001.
[76] Swail, W.S., Heller, D.E., Changes in tuition policy. Natural policy experiments in five countries. Canada Millennium Scholarship Foundation, 2004.
[77] Heller, 1997; McPherson and Schapiro, 1997

6.4. Inter-group inequalities

This section presents data on inter-group inequalities in access to tertiary education, focusing on age and gender inequalities. No comparable data was found to enable us to explore socio-economic background or ethnic origin.

Regarding inter-group inequalities by age, there is some scarcity of data. The status of this inequality is also, to some extent, ambiguous. If most people in one country access tertiary education at an early age and enter the labour market, it may be the case that they simply do not require access to tertiary education later on in life, but can rely on continuing education and training outside formal learning institutions. There is also, however, still a large number of people that do not access tertiary education early in their lives. Having the opportunity to enter tertiary education later on may therefore be important for them. The figure below shows the percentage of ISCED 5A –which accounts for most of tertiary education in EU countries- students aged 30 and over in 2003 and 2000[78].

Figure 6.3: Percentage of ISCED 5A students aged 30 and over



Source: EUROSTAT

The figure shows that there is very high variation in the proportion of students over 30 in tertiary education in different European countries. Nordic European countries, the Netherlands, the UK, Czech Republic, Hungary and Latvia have the highest rates of access to tertiary education by people above 30. Germany, Austria, Belgium, Spain and some of the New Member States (Bulgaria, Cyprus, Slovenia, Slovak Republic) have low rates of access for this group.

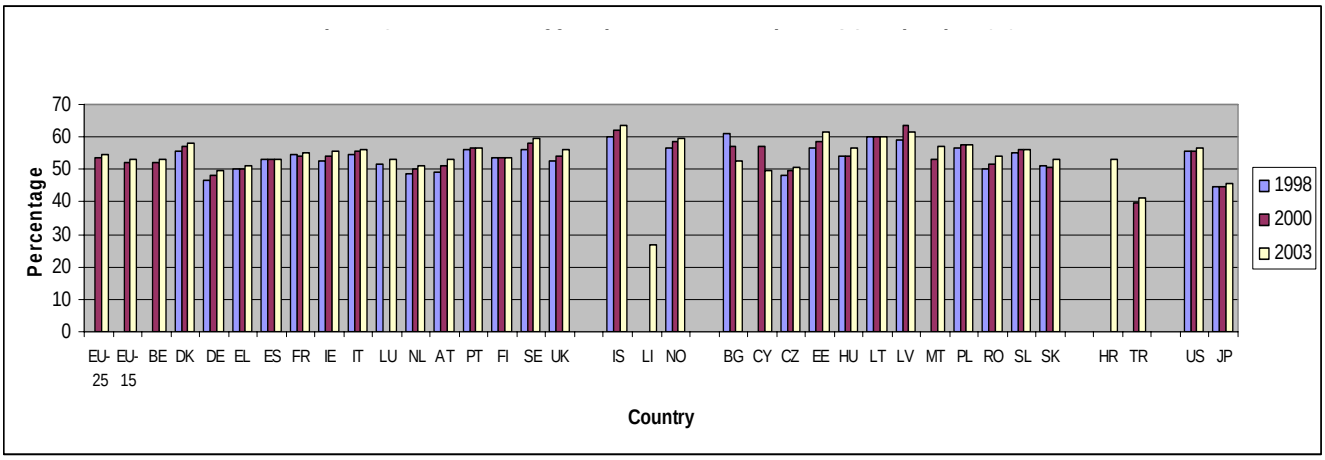
The figure also shows that access to tertiary education by people above 30 has risen in a majority of Member States for which data is available. This has been particularly the case in some Eastern European countries, such as the Czech Republic, Latvia, or Slovakia which tended to have low rates of access in 2000, but also in some Nordic European countries which

[78] The figures presented are likely to underestimate the proportion of students over 30 slightly, given a number of students for which age is unknown, some of which presumably will be over 30, in the EUROSTAT data.

exhibited high access rates in 2000 (such as Norway and Iceland). Further progress, is needed to widen and expand access to tertiary education by those over 30 in most EU countries, to reach similar levels to those of the US and Nordic European countries, which are leaders in this area.

Regarding access to tertiary education by females in relation to males, data is presented in the figure below. The figure shows, as anticipated above in this report that in most countries there is a higher proportion of females than males accessing ISCED levels 5 & 6. This is the case in virtually all European countries, and the tendency has been exacerbated during the period 1999-2003.

Figure 6.4: Percentage of females amongst students ISCED levels 5&6



Source: EUROSTAT

During this period, all countries except Bulgaria have seen an increase in the proportion of women among tertiary education students. The trend is particularly pronounced in Iceland, Lithuania, Estonia, Sweden, Latvia and Norway, where the proportion of women in levels 5 and 6 reaches or approaches 60%. The countries where there is a higher proportion of males than females include Germany, Cyprus, Liechtenstein and Turkey. Only in Turkey and Liechtenstein is the difference pronounced. The EU-25 average shows that 54.6% of the students in ISCED levels 5 and 6 were females in 2003, raising from 53.5% in 2000. These trends suggest that there is a certain degree of gender inequality in access to tertiary education in Europe, that the inequality trend has been accentuated in the last four years and that the inequality trend disfavours males in relation to females.

Chapter 6 Summary

During the period covered by the study, EU-15 countries had gross enrolment rates in tertiary education that varied between 40% and almost 90%, which represents a very high variation. Differences between leaders (FI, SE) and laggards (such as LU, DE or PT), moreover, have not reduced. Participation rates in New Member States and Candidate countries are in general lower than those of EU-15 countries, and the difference in participation between both groups of countries is even more marked than in pre-primary education. Yet their trend towards increased participation is also strong. Whereas in 1995 their gross enrolment rates ranged from 20 to 50%, in 2002 they ranged mostly between 30 and 70%.

Tertiary education enrolment has increased substantially more since Lisbon than in the period 1995-2000 in most EU countries. Trends in the EEA, Japan and USA, however, tell a similar story, with heavy increases after 2000. This may suggest structural reasons for the increase, rather than an impact of the 2000 Lisbon Strategy or the Bologna process on national policies in education and enrolment patterns, although they may still have had an effect in EU countries.

Our data analysis showed that public investment is key to increasing levels of access to tertiary education. An increase in public expenditure on tertiary education equivalent to 1% of GDP is associated with a 21% increase in gross enrolment rates. This is a crucial and clear finding in our model, which was particularly robust in the sensitivity analysis we conducted. However, public institutions do not need to go it alone. Private education has been rapidly growing, especially in East European countries.

By contrast, we found that financial support to students was negatively correlated with access, although the relationship is only significant at the 90% level, which should make us cautious about establishing strong conclusions from this result.

We also found that the number of students enrolled was also positively associated with access levels, which means that increasing enrolment rates reflects an increasing number of students enrolled rather than an increase in the number of students taking more than one course.

Regarding inequalities, Nordic European countries, the UK, the Netherlands and Czech Republic, Hungary and Latvia have high rates of access by people over 30 in 5A type programmes. Central, Southern and the other Eastern European tend to have low rates of access for this group. Finally, in most countries there is a higher proportion of females than males accessing ISCED levels 5 & 6. This is the case in virtually all European countries; the tendency has been exacerbated since 1999.

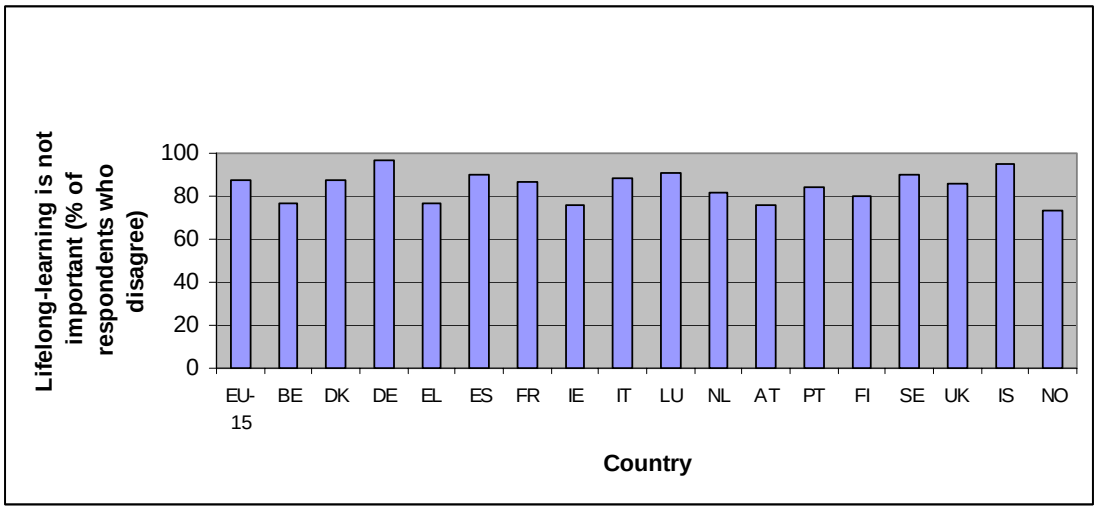
7. ADULT EDUCATION

7.1. Introduction[79]

In our conceptual framework we discussed the complexities involved in the conceptualisation and measurement of access to adult education and the reasons why Labour Force Survey data was selected for use both for theoretical and practical reasons. At a theoretical level, LFS data is appropriate since the LFS indicator on lifelong learning comprises a numerator that refers to persons aged 25 to 64 who stated that they received education or training in the four weeks preceding the survey, whilst the denominator consists of the total population of the same age group, excluding those who did not answer the question 'participation in education and training'. The data relates to all education or training whether or not relevant to the respondent's current or possible future job. At a practical level, LFS data is of sound quality and its geographic and time coverage is greater than that of any other survey in this area (although time coverage is greater for former EU-15 countries than for New Member States and candidate countries).

Before presenting LFS data on participation in adult education, it is worth highlighting that there are some differences in the value attached to lifelong learning by people in different countries, although the support for adult education and lifelong learning is very high in all European countries (see figure 9). The value attached to lifelong learning goes from 95% of the population thinking that lifelong learning is important in Germany, to 75% of the population supporting the same view in Ireland and Greece. So, although participation rates in Europe have not increased drastically in the last few years as we will see below, the political discourse in relation to this topic seems to be widely accepted by European citizens.

Figure 7.1: The value attached to Lifelong Learning by European citizens



Source: Lifelong learning: Citizens' Views, CEDEFOP (2003).

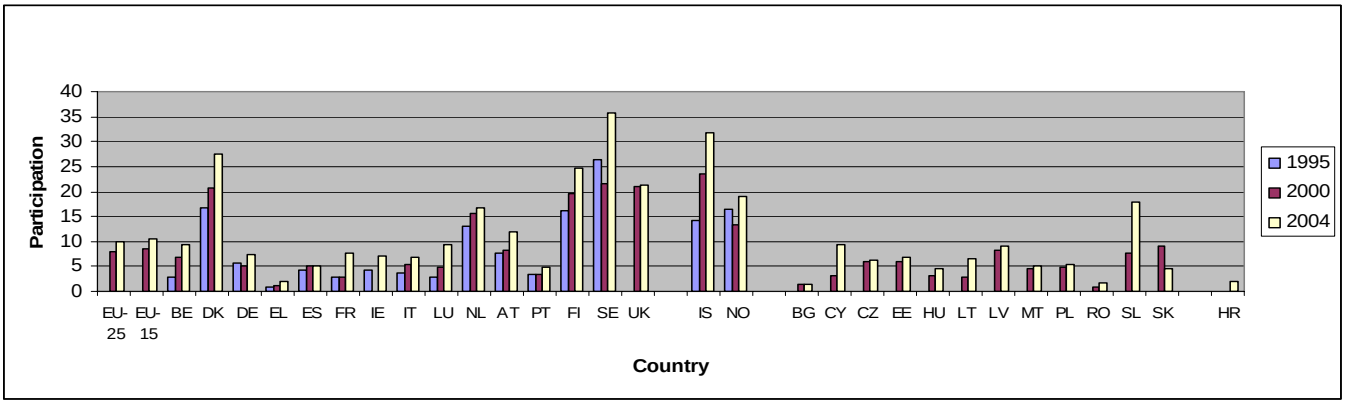
[79] For a complete description of the coding of all variables employed in the study and their geographical and time coverage the reader is referred to Annex 3. The complete Excel and STATA datasets and syntax used for the analysis of access trends and determinants are available from ECOTEC on request.

7.2. Trends in access to adult education

7.2.1. Trends in Europe

Data on access to adult education is presented in figure 10. This shows the proportion of people who participated in education and training in the four weeks prior to being surveyed by the LFS and is extracted from EUROSTAT's NewCronos database. When looking at this data, the most striking features are the low participation rates in some EU countries and the wide variation that exists between countries. The first of these features is evident when EU rates are compared to those in EEA countries –there is no comparable data for Japan and the USA. Whereas both Norway and Iceland have participation rates around 20-25%, most European countries struggle to reach the 5% mark. The European average of 9.9% is only pushed up by European leaders such as the UK, Sweden and Denmark, which have participation rates at above 20%. The Lisbon objective of 12.5% of the population participating in lifelong learning, therefore, is still a distant goal for many European countries,. The increase in the period 2000-2004 for the EU as a whole, however, has been exactly 2%, or an average of a 0.5 percentage point increase per year, which would suggest that sufficient progress is being made to reach the target if sustained for the remainder of the decade. However, the data overstates progress as a result of breaks in time series and there has been in reality only a slight real progress compared to 2000, despite the nominal two percentage point increase. Additional efforts are therefore needed to reach the benchmark of a 12.5% participation rate in 2010.

Figure 7.2: Participation in Lifelong Learning



Source: EUROSTAT; Data for 1995 is from 1996 in NO, SE, FI, DE; Data for 2000 is from 2001 for PL, BG, SL and from 2002 for CZ, LV, SK; Data for 2004 is from 2003 for IS.

Since 2000 there has been an upward tendency in several European countries – at a very high rate in Sweden and Denmark and at lower rates in other countries, such as Austria, Belgium, the Netherlands, Slovenia and Finland. However, there are also a number of countries where participation rates have stabilised at very low levels or decreased since Lisbon; this has happened in Slovakia, Croatia and Bulgaria.

Therefore, rather than seeing a convergence towards a common pattern of adult education and training provision, we see a move towards greater divergence between countries. Moreover,

different policy strategies are being used by different countries to increase participation rates in adult education and training. For example, while the Scandinavian countries are pursuing a policy approach that places great responsibility on the public sector and social partners, the Anglo-Saxon countries are pursuing an approach that leaves greater responsibility to the individual learner or employer. However, in these cases both approaches seem to suit, and have grown out of, the particular context in which they are implemented, as access to adult education and training in these countries is above average.

When comparing adults' overall participation in learning activities, it is of interest to note, as illustrated in the qualitative review of adult learning undertaken for this study, that it is the countries that have made most progress towards greater non-formal and informal learning provision, notably the Nordic and Anglo-Saxon countries, that display greater participation in lifelong learning. This suggests that for adult education and training, the successful implementation of non-formal and informal learning structures is critical for enhancing access (see also the results from the ad hoc module of the 2003 Labour Force Survey on lifelong learning shown in section 6.2.2 below). This is perhaps unsurprising, in light of the barriers faced by adults and their need to combine learning with work and family obligations. Moreover, it is important to note that the countries that have made most significant progress with non-formal and informal adult education and training have not used these learning opportunities as a substitute for traditional formalised education and training, but as a complementary addition to lifelong learning.

Adult education and training is taking on an increasingly important role in overall education and training provision. With the emergence of lifelong learning as a dominant paradigm of education and training provision, it is increasingly recognised that the opportunity to gain and update skills and abilities need to be available to individuals throughout their life. However, it is also becoming increasingly clear that adult education and training is taking on a number of different forms, as new opportunities for learning emerge outside of the formalised institutionalised provision of education and training. Continuing vocational education and training is, therefore a very heterogeneous phenomenon, which encompasses a wide range of activities. Systematic information on the learning activities undertaken by the adult population in European countries is not available on a periodic basis. However, some surveys have collected that information in the past.

Information on the type of training predominant in each European country is provided in the table below, from the CVTS2. As can be seen, much of the learning of adults takes place in non-formal and informal settings. Recognition of the important contribution of informal learning to lifelong learning has led to an increasing attention on accreditation of prior and informal learning. This is particularly marked in France, where all workers and job-seekers have the right to a review of prior non-formal or informal learning. Norway and Austria also highlight similar priorities and in Iceland the Ministry of Education, Science and Culture are developing methods to assess formal learning. In a number of Eastern European countries,

notably Hungary and Slovenia, there has been recognition of a requirement to develop systems for validating previous and informal learning[80].

Table 7.1: Proportion of enterprises that offer 'other' forms of continuing training according to the form of continuing training (%-1999)

Information courses		Continuing training in the workplace		Job rotation / exchange programmes		Learning and quality circles		Self-directed learning	
SI	93	IRL	95	I	58	E	33	DK	75
A	86	B	83	IRL	48	SI	31	FIN	55
EE	86	UK	76	L	45	DK	30	NL	45
D	85	D	75	S	45	EL	29	NO	41
CZ	84	NL	72	B	43	UK	29	S	37
LT	83	A	72	F	41	B	28	UK	37
FIN	82	L	70	UK	41	F	27	L	36
DK	78	P	69	E	34	BG	27	BG	32
LV	77	I	67	PL	34	RO	27	CZ	30
IRL	73	NO	65	DK	32	P	23	E	29
I	72	BG	65	FIN	29	FIN	23	A	29
NL	72	S	64	NO	28	IRL	22	LV	28
HU	72	F	62	RO	28	NL	22	EE	26
PL	72	LV	61	A	24	I	21	RO	26
EL	71	RO	59	P	21	A	21	IRL	25
S	71	PL	56	EE	20	NO	20	F	23
NO	71	DK	55	NL	19	S	18	SI	23
L	68	E	55	BG	19	EE	17	B	22
P	63	FIN	55	SI	19	D	16	HU	20
UK	62	HU	54	HU	15	L	16	PL	20
BG	62	SI	53	EL	13	LV	14	D	19
E	52	CZ	49	CZ	8	HU	12	LT	18
B	47	EL	45	LV	8	CZ	10	EL	15
F	46	EE	44	D	6	LT	10	P	11
RO	45	LT	38	LT	5	PL	4	I	6

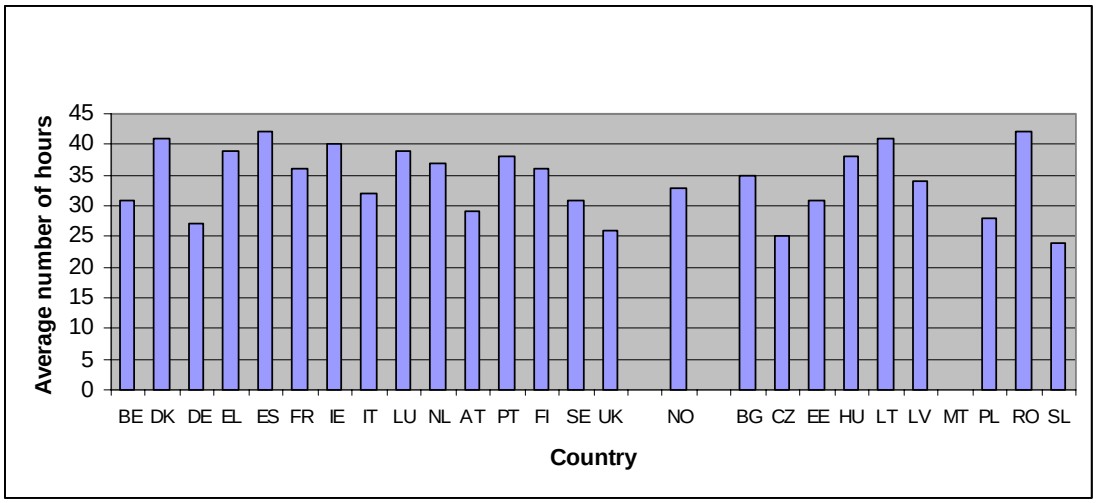
Source: CVTS2

Information on the average duration of the training undertaken by country, also obtained from the CVTS2, is provided below. The graphic suggests that there is no trade-off between participation rates in work-related adult education and training and the duration of the training. Some countries, like Denmark, do indeed seem to reconcile a high rating in both measures. Other countries with high participation rates, however, exhibit low duration of training, as in the UK. In general differences between EU-15 countries and New Member

[80] For an in-depth review of validation of non-formal and informal learning the reader is referred to the European Inventory on Validation of Non-formal and Informal Learning produced by ECOTEC for the European Commission and available from http://www.ecotec.com/europeaninventory/

States are small, with Romania, together with Spain, leading the average duration of training, and Lithuania also trespassing the 40 hours per year duration barrier.

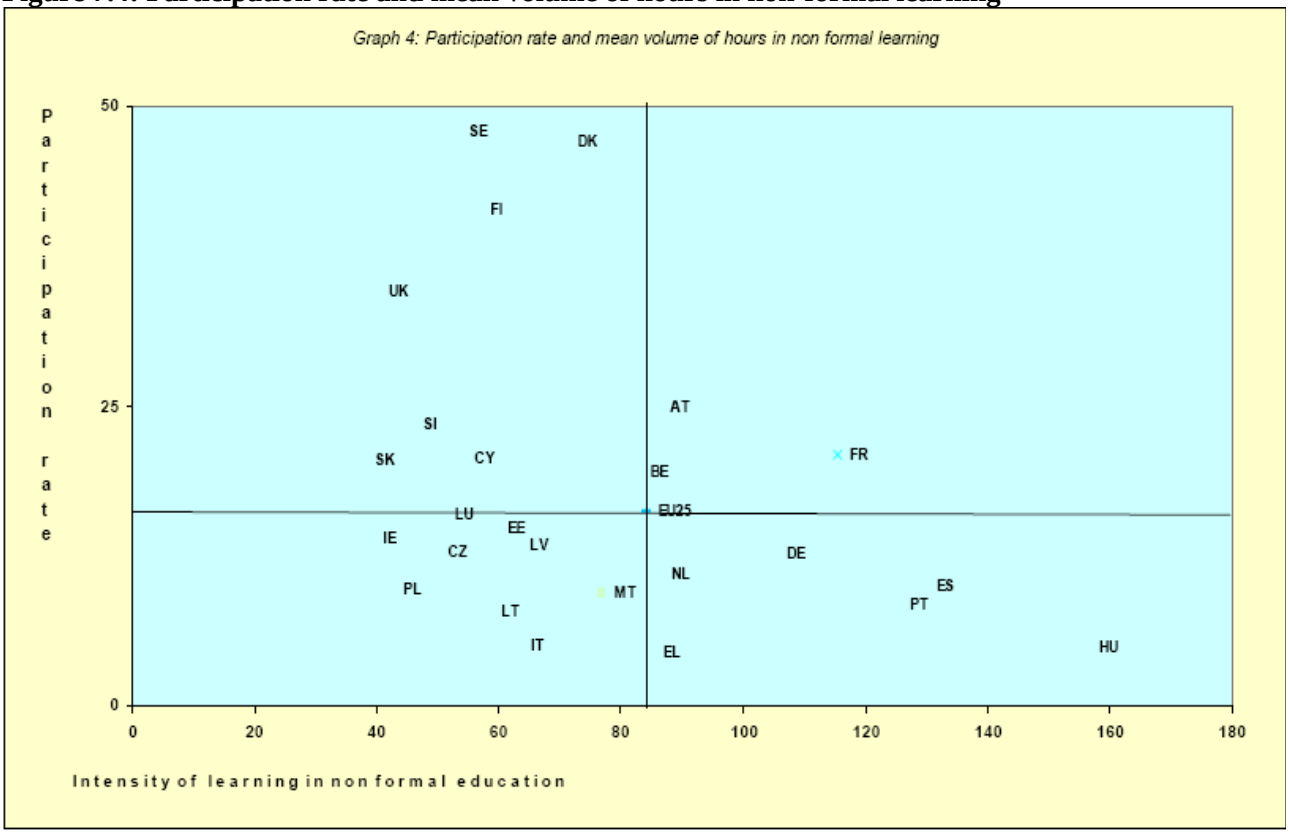
Figure 7.3: Hours per participant in vocational training (1999)



Source: CVTS2

The lack of trade-off between intensity and quantity of training, however, is less clear when we use data from the recent LFS ad hoc module on lifelong learning. Thus, we see in the graph below a negative relationship between two variables. Only Austria, France and Belgium, using this data, seem to be able to combine higher than average rates of participation with higher than average duration of training. It is important to note that this data refers to all types of non-formal learning, as opposed to the CVTS2, which focused on continuing vocational education and training in companies only.

Figure 7.4: Participation rate and mean volume of hours in non-formal learning



Source: Eurostat LFS, Ad hoc module on lifelong learning 2003. Target population: 25-64 years old

There is no comparable data on access to adult education for EU's international competitors. The next section, however, presents some data on adult education in the US that can be contextualised with levels of access in Europe on a wider perspective.

7.2.2. Comparison with international competitors: Europe and the US

There is no comparable data to that obtained in the LFS for the EU's main international competitors, such as the US or Japan. In fact, for Japan no quality data on adult education is available[81]. The US Department of Labour's Population Survey does not cover training in detail either, whereas the US surveys of employer provided training (1993 and 1995) are now dated. IALS (1994-98) can give some idea of the level of US adult participation in education. The survey reported a participation rate of 39%, above the weighted country average of 34%, but well below the survey's leader, Finland (56%). More recently, the US National Household Education Survey has provided data for participation in adult education, for work-related reasons only, over the last 12 months and covers formal, non-formal and informal learning (for people aged 25 to 65 and for the period 2002-2003). Kleiner et. al. (2005)[82] report that during that period 40% of adults had taken part in some kind of formal or non-formal learning. 33% had taken part in work-related courses, 9% had participated in college degree programmes, 2% in vocational degree/ diploma programmes and 1% in apprenticeships. They

[81] Andreas Schleicher (2005) "OECD Education at a Glance 2005. OECD Briefing note: Japan" OECD, Paris.
[82] Kleiner, B., P. Carver, M. Hagedorm and C. Chapman (2005) "Participation in Education for Work related reasons in the US".

report that 58% of adults had taken part in informal learning activities, the figure rising to 75% when looking only at those in employment. 56% had taken part in on-the-job demonstrations, 43% in supervised training or mentoring, 31% in self-paced study (books, manuals, television programmes, video-tapes), 23% had attended conferences, trade shows or conventions, 21% had attended informal presentations and 21% had undertaken self-paced learning using computer software.

The LFS ad hoc module for 2003 shows that 42% of the EU population[83] aged 25-64 had participated in some form of education, training or learning activity over the 12 months preceding the survey. However, of those only 4.4% (less than half the proportion in the US) had been in formal education, i.e. schools, universities and colleges. 16.5% had participated in non-formal education (non-formal education and training includes all types of taught learning activities which are not part of a formal education programme) and nearly one European out of three had declared that they had taken some form of informal learning informal learning corresponds to self-learning which is not part of either formal or non-formal education and training, by using different methods like books, computers, learning centres or educational broadcasting). These figures show that 58% of EU citizens did not participate in any kind of learning. Differences between countries are very significant, however, participation ranging from a rate of 12% in Hungary and 17% in Greece to 82% in Luxembourg and Slovenia and 89% in Austria.

The next section of this report presents additional information on the determinants of access to adult education and training. The first part of the section presents a bivariate analysis of the relationship between levels of access to adult education and training and the incidence of learning organisations in different countries, whereas the second part of the section concentrates on a multivariate analysis of access determinants.

7.3. Data analysis

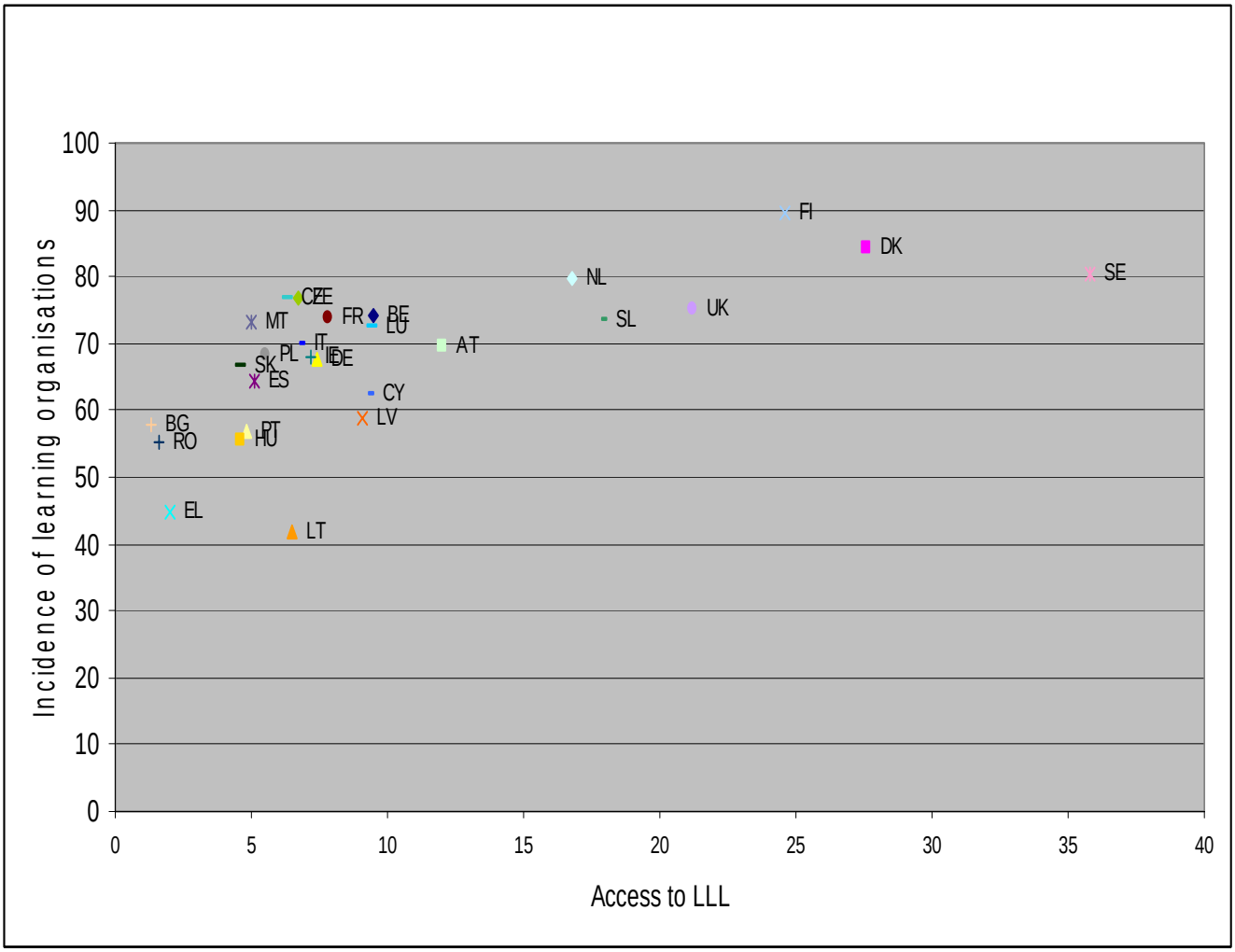
7.3.1. Bivariate analysis

Despite the emphasis placed on the workplace as a potential place of learning, with particular mention of the learning organisation as a central component of lifelong learning, a recent review of lifelong learning in the EU found that "there is little or no information on LLL [lifelong learning] initiatives originating from within the workplace. Familiar concepts such as the learning organisation or l'organisation qualifiante du travail are noteworthy for their absence"[84]. However, the same review also notes that "the combination of education and training with work […] is an important factor in developing the LLL reflex. Replies from several countries [to that EU project survey] suggest that education and training systems are increasingly evolving towards such a dual approach, placing a growing emphasis on work-related practice and employability".

[83] Kailis, E. and Pilos, S. (2005) "Lifelong learning in Europe" Statistics in Focus, Population and Social Conditions" 8/2005.
[84] European Commission (2003), Implementing Lifelong Learning strategies in Europe, p. 8

Notwithstanding this lack of information, it is possible to examine the proportion of organisations where workers learn new things in their jobs. On this measure, the level of 'learning organisations' in Europe is relatively high and surpasses 75% in many countries[85]. The relationship between access to adult education and training and the proportion of work centres that are learning organisations could not be explored in our multivariate analysis due to lack of data. However, the relationship between both variables seems clear from the figure below. The bivariate relationship is strong and positive (the correlation coefficient is a healthy 0.5600). In other words, the higher the proportion of learning organisations in one country, the higher the level of access to adult education and training tends to be.

Figure 7.5: Relationship between the incidence of learning organisations and access to LLL



Source: European Foundation for the Improvement of Living and Working conditions: Third European Working Conditions Survey (2003) and the First Candidate Countries Survey on Working Conditions (2001).

[85] Data from the Third European Working Conditions Survey (2003) and the First Candidate Countries Survey on Working Conditions (2001).

7.3.2. Multivariate Analysis

Our analytical framework for this study suggested that the following variables for which sufficient observations were available could hold a systematic relationship with access to adult education:

Table 7.2: Expected relationship between access to adult education and framework variables

Dependent variable	Independent variable[86]	Expected relationship
Access to adult education	Extent of participation on CET in works-council type bodies	+
Access to adult education	Intensity of collective bargaining on CET	+
Access to adult education	Joint governance of CET funds by social partners	+
Access to adult education	Training levy and earmarked contributions at national level	+
Access to adult education	Training levy and earmarked contributions at sectoral level	+
Access to adult education	Degree of technological change: The number of patent applications to the European Patent Office per million inhabitants	+
Access to adult education	Percentage of expenditure in research and development performed by the business enterprise sector	+

Source: ECOTEC Research and Consulting Ltd.

The results of our analysis are presented in the table below.

[86] For additional information on independent variable definitions and sources see table 4 on section 4.4.1 of this report.

Table 7.3: Access to adult education regression results

Variables included in the model	Regression results
Technological change	.0351677 ***
	(0.01)
Works Councils	-5.219445 ***
	(1.05)
Collective Bargaining	4.28321 **
	(2.01)
Joint Governance of Training Funds	8.042649 ***
	(1.90)
National levy	-15.66769 ***
	(1.34)
Sectoral levy	-12.6936 ***
	(1.83)
Industrial profile	0.079512
	(0.13)
N= 49 ; R-square = 0.7710	

***= significant at the 99% confidence level; ** = significant at the 95% confidence level; * = significant at the 90% confidence level

The results obtained show all variables included in the model as significant at better than the 95% level of confidence. The only exception is industrial profile, which is not significant. The direction of the relationship is the opposite of what we expected for three variables: the extent of participation of works-councils in discussions regarding CET, the existence of a national training levy, and the existence of a sectoral training levy. This would suggest that training levies are not an effective way to increase participation in lifelong learning. By contrast, the degree of technological change, the strength of collective bargaining over training issues and joint governance of training funds by social partners have a positive correlation with access to lifelong learning. The effect of joint governance of training funds by social partners is quite substantial, as is the effect of the degree of technological change.

Indeed, the role of the social partners in general, and the business community and employers in particular, in lifelong learning strategies has become increasingly prominent across Europe. This is in part in recognition of the market failures that exist in the area of adult education and training, such as labour market imperfections, capital market imperfections and training market imperfections, which lead to under-investment. In order to address these problems, "Structured involvement of employee representatives and the social partners at various levels of negotiation and dialogue on training"[87] are needed. It is indeed of interest to note that while "much of the industrial relations literature is focused on the trend towards decentralisation of bargaining, more flexible use of labour and power shifts from trade unions to employers, the organisation of CET [continuing education and training] in many countries reflect a different tendency, i.e. that of increasing dialogue"[88].

[87] OECD (2003), p.32
[88] OECD (2003), p. 38

While it is increasingly recognised that it is important to involve the social partners in shaping adult education and training opportunities through involvement in committees and partnership, the intensity of the actual involvement and responsibility differs greatly between individual countries. In countries such as Belgium, Denmark, Finland, France and the Netherlands the involvement of employer and employee organisations is particularly important. Such involvement is partly shaped by a long tradition of social partner involvement in labour market policies. In contrast, the role of social partner organisations is less pronounced in the UK and the US. In these countries, the responsibility is left to individual employers and employees with, for example, the government in the UK promoting the idea among employers that addressing basic skills should be a normal part of workforce development activity. In the US consultation on continuing education and training in joint labour-management committees is restricted to 4% of union contracts (and 8% of those with companies of 1,000 or more employees), indicating that the role of social partners and bargaining is very limited[89]. Similarly, "The use of national tripartite structures as a predominant platform for social dialogue in acceding and candidate countries has offered only a limited potential in terms of promoting in practice the concept of responsibility sharing. In fact, the experience of the transition process in Central and Eastern Europe demonstrates that in most cases governments have kept a leading role in setting the agenda of these structures while the possibilities for social partners to have through them an effective influence on the policy making process [in the area of lifelong learning] have remained rather marginal. This situation should be linked with the still important deficit in many countries of autonomous social dialogue at sector and plant levels"[90].

It is also evident that there are different mechanisms for involvement of the social partners in different countries. Accordingly, while Belgium and Italy use relatively more collective bargaining on continuing education and training than works councils, other countries, such as Germany, Austria and the Netherlands place relatively greater emphasis on the existence of indirect or representational employee participation at company or workplace level through elected work councils, rather than collective bargaining. Meanwhile, Denmark and France have extensive involvement of social partners through both collective bargaining and work councils, though whereas Denmark has high access rates, France ranks average.

Moreover, it is also important to distinguish between the different types of learning opportunities available to adults. For example, while there is significant public provision of and social partner involvement in formal adult education and training in Germany, this country displays lower levels of access to non-formal and informal learning opportunities in the workplace than, for instance, Nordic countries. The relationship between the responsibilities of different actors and stakeholders and access to adult education and training is therefore not uniform across different forms of learning and education and training provision.

[89] OECD

[90] European Commission (2003), Implementing Lifelong Learning Strategies in Europe: Progress report on the follow-up to the 2002 Council resolution on lifelong learning, p. 8

What seems clear from our qualitative review is that there is not a uniform trend towards more or less involvement of social partners in education and training issues in the EU. Rather, countries that have little tradition of involving social partners in education and labour market issues continue to show little involvement of these actors in the area of adult education and training, while countries with a tradition of significant involvement of social partners in the economy and society, extend this involvement to the area of adult education and training.

Moreover, with the emergence of self-directed learning and distance-learning opportunities, these new avenues of learning are emphasised in adult education and training strategies across the countries under review. This means that individual adults can increasingly take responsibility for their own learning trajectories, and access education and training opportunities more easily. With further developments in ICT as a new learning tool there are, potentially, significant effects on the freedom and responsibility of individual adults to pursue education and training activities. However, the extent to which these opportunities are being utilised also differs significantly across countries.

7.4. Inter-group Inequalities

This section looks at inequalities in access to adult education, by using data from the European Labour Force Survey ad hoc module 2003, IALS and CVTS2 surveys[91]. We explore inequalities by:

- Geographical region
- Previous level of educational attainment
- Occupational status
- Occupation
- Firm size
- Gender
- Age group.

Results show that the greatest inequalities are those related to age and previous level of educational attainment.

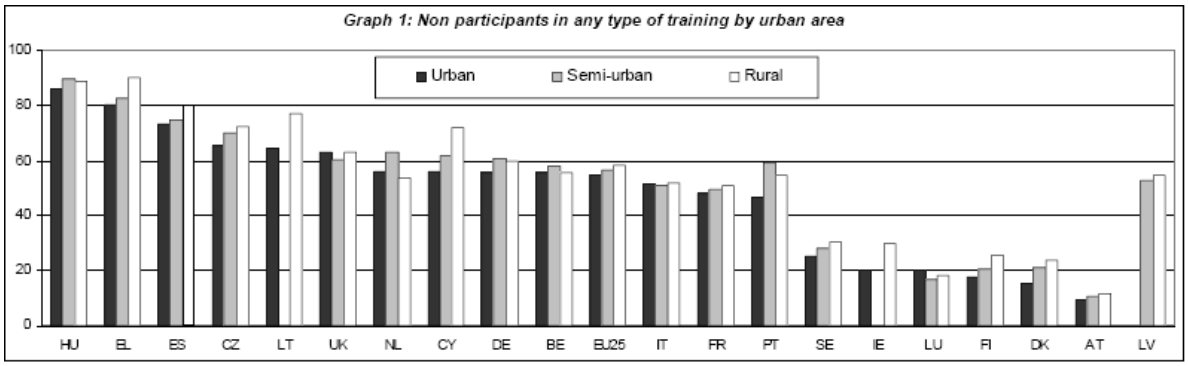
7.4.1. Geographical location

The geographical location of adults can affect their chances to take part in adult education and training. People in rural areas could be expected to have fewer opportunities for both formal and non-formal learning. In 14 out of 20 countries for which data is available from the LFS ad hoc module people living in rural areas had higher non-participation rates in training than people living in semi-urban or urban areas. The countries with greatest differences in non

[91] Data from the European Labour Force ad hoc module has been taken from Kailis, E. and Pilos, S. (2005) "Lifelong learning in Europe" Statistics in Focus, Population and Social Conditions" 8/2005. Data from the IALS has been taken from Philip J. O'Connell's 1999 paper for the OECD: "Adults in training: and international comparison of continuing education and training" CERI/WD(99)1, from which many of the comments to the tables have also been taken. Data refers to the mid-1990s. Data from the CVTS has been taken from the paper "Continuing training in enterprises in Europe- Results of the second European Continuing Vocational Training Survey in enterprises" prepared by CEDEFOP.

participation between type of geographical areas were, according to the survey, Greece, Spain, Lithuania, Cyprus, Ireland, Finland and Denmark. In addition to the relative lack of infrastructures for adult education in these countries, the age of the population in each country in rural areas could also be an important factor explaining these differences.

Figure 7.6: Non participation in any type of training by type of are



Source: Eurostat LFS, Ad hoc module on lifelong learning 2003. Target population: 25-64 years old

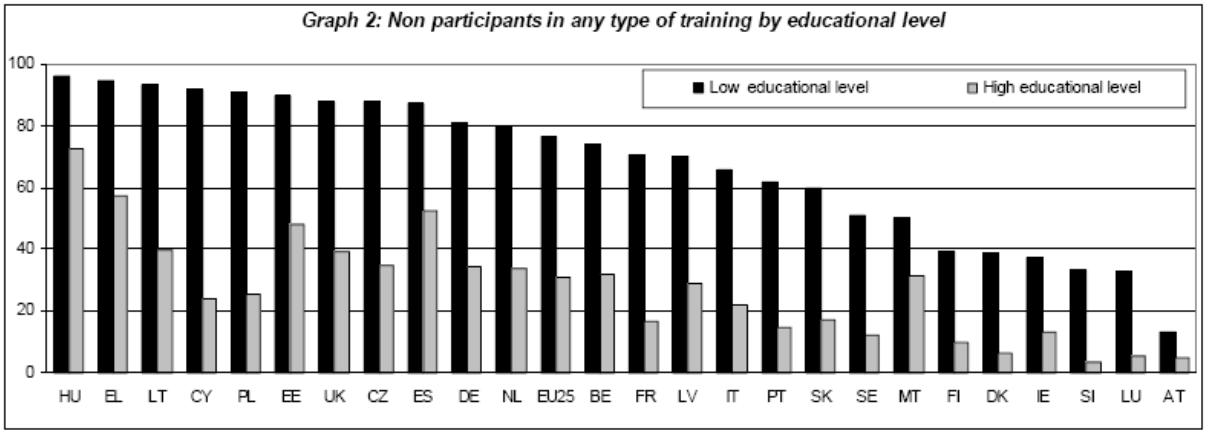
7.4.2. Previous level of educational attainment

Previous level of educational attainment is a key source of inequality in access to adult education, although addressing basic skills needs and providing training for the unemployed (who tend to have lower levels of educational attainment than the average) are common objectives of adult education for most European governments.

The figure below compares non-participation rates with educational levels attained using data from the LFS ad hoc module. In this data a high level corresponds to tertiary education, and a low level corresponds to the successful completion of at most lower secondary level. It appears clear that people with low educational qualifications participate in training much less than those with tertiary education qualifications. The non-participation rate for the low qualified in the EU25 is 1.5 times more than for the highly qualified. However, while the correlation between level of education and participation is positive in all countries, it is not at a consistent level across countries; the most significant gaps by educational attainment are observed in Cyprus, Poland, France, Portugal, Sweden, Denmark, Slovenia and Luxembourg.

On average, around one in three people in the EU who has a high educational level takes part in non-formal education per year, and this rate reaches more than one in two in Sweden, Finland, Denmark and the United Kingdom. The Northern Member States, Luxembourg and Austria also have higher rates of participation amongst people who have low prior levels of educational attainment.

Figure 7.7: Non-participants in any kind of training by type of educational attainment



A principal reason for such differences is the positive correlation between higher expected returns to the employer of vocational education and training and the level of education of the employees receiving training and education. Indeed, IALS (1994) showed that the discrepancy in further training by educational attainment is even greater in the case of job-related training. On average across countries, 21% of those with lower secondary education or below participated in some form of further education or training. This is lower than the 38% average participation in any kind of education or training for those with upper secondary and 55% for those with tertiary education., However, less than 14% of those with lower secondary education or below reported having received job-related training in the IALS, compared to 28% of those with upper secondary and 44% of those with tertiary qualifications.

The differences in access to adult education by previous level of educational attainment are still greater if one considers that the duration of training undergone is also positively related to educational attainment. This should be a matter of concern, suggesting that participation in adult education is, in a sense, inversely related to need: current patterns of participation are likely to exacerbate rather than reduce labour market inequalities and processes of social exclusion.

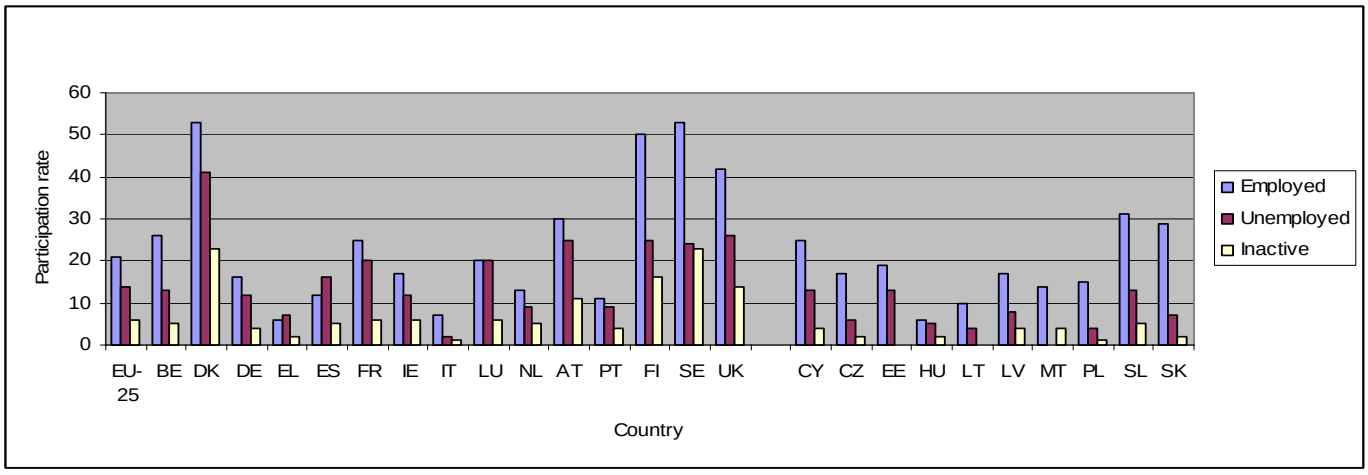
7.4.3. Occupational status

In this section we see, using data from the LSF ad hoc module on lifelong learning, that for most Member States participation in adult education is lower for the unemployed and inactive than the employed. This is consistent with previous findings from the IALS in the mid-1990s for the same age group, which showed that in most countries the incidence of participation in education or training was closely related to labour market status, with the employed showing substantially higher rates of participation than the unemployed[92], who in turn show higher rates of participation than those not economically active.

[92] In Table 1 labour market status refers to principal economic status at the time of the survey, while participation in education or training refers to the previous twelve months, with the result that some individuals would have changed status in the period between the training event and the survey. However, even with non-random transitions between statuses, this is unlikely to substantially alter the pattern of marked differences in participation rates by labour market status shown in Table 1.

However, the LFS data also shows that Spain, Greece, Luxembourg, Austria and Portugal record similar participation rates in non-formal education for the employed and unemployed population. It is only in Austria, the United Kingdom, Finland, Denmark and Sweden that more than one inactive citizen in ten participates in non-formal education. At EU25 level one out of seven unemployed persons follows non-formal learning while in the Northern Member States, the United Kingdom, Austria, France and Luxembourg this rate reaches at least one out of five. The impact of the educational level of the participant on the intensity of their participation is not as important as their working status. This probably partly reflects the fact that most efforts for non-formal education target unemployed persons where the volume of training is nearly three times higher than the training of employed people in most countries.

Figure 7.8: Participation in LLL by occupational status



Source: EUROSTAT, LFS ad hoc module on Lifelong Learning 2003. Target population: 25-64 year old.

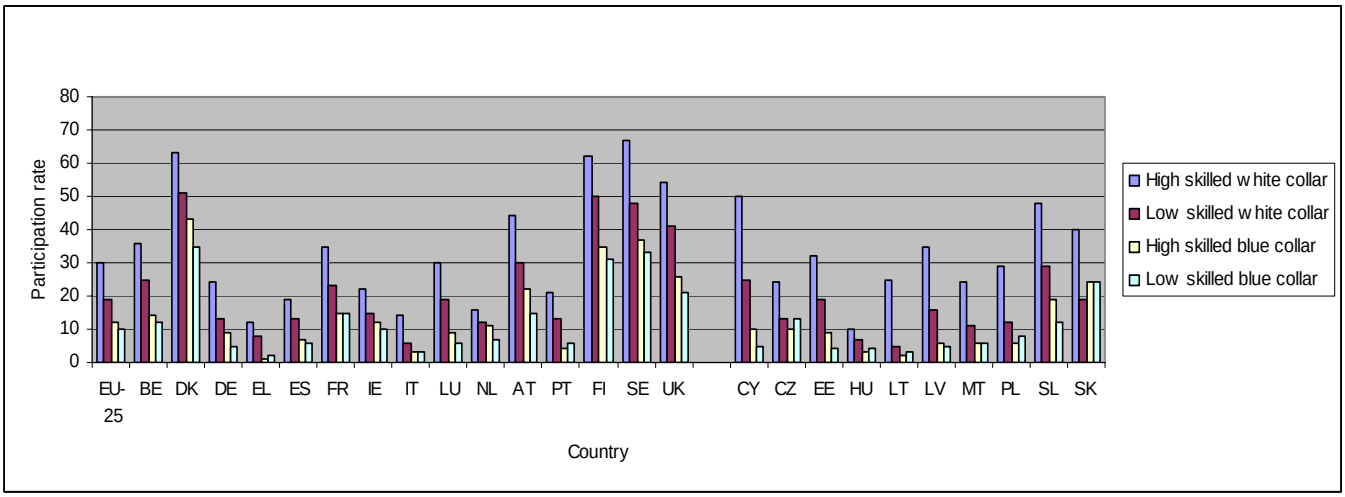
As such, occupational status is less of a barrier in countries with extensive measures to facilitate education and training opportunities for unemployed and self-employed, and part-time workers. In line with the pre-occupation to upskill the labour force in line with industry requirements mentioned above, unemployed people are often entitled to a range of dedicated provision to increase their employability. A good illustration of this can be found in Austria, where Arbeitsstiftung (work foundations) have been used to promote CVET in specific sectors. Participants can stay in the work foundation for three to five years, during which time they can take part in CVET programmes and are entitled to Ausbildungsarbeitslosengeld (vocational training unemployment benefit). In a similar vein, many different local training initiatives in Ireland, run through community based projects, offer temporary employment and training opportunities for unemployed people. This facilitates re-entry to the work environment by breaking the experience of unemployment. Job rotation schemes identified in Germany, Denmark and the Netherlands, provide opportunities for unemployed people to fill jobs temporarily vacated by employees on training leave. Clear entitlements to specific training for people who are unemployed or at risk of being unemployed are also displayed in countries such as the Czech Republic, Slovenia and Poland, though these are in clear contrast to the tendency for there to be only weak entitlements for employees to pursue continuing education in general across Central and Eastern European countries, discussed above in this chapter. Latvia offers training

programmes for the unemployed who have no (or out of date) professional qualifications but are so over-subscribed that the Employment State services selects candidates on the basis of motivation.
In contrast to the employed and the unemployed, part-time workers are a particular concern because they tend to get very little training as they are normally not selected for company training nor are they eligible to benefit from training under active labour market policies. Unfortunately, data that might enable this issue to be explored was not available from the EUROSTAT release employed for the preparation of this report nor from the IALS.

7.4.4. Occupation

It is not only occupational status that seems to create inequalities in access to adult learning. The figure below shows that, amongst the employed, different occupations provide different rates of access to adult learning.

Figure 7.9: Participation in LLL by occupation



Source: EUROSTAT, LFS ad hoc module on Lifelong Learning 2003. Target population: 25-64 year old.

In the figure above employees are split into four categories according to their occupation[93]. The table shows the percentage of employees aged 25-64 who participated in non-formal education or training activities in the twelve months preceding their interview. A number of results are notable from this table. First there is a clear cut difference between white and blue collar occupations, with white collar employees having greater rates of access to adult education. Second, there is also a clear difference between highly skilled (30%) and low skilled (19%) white collar. This latter finding contrasts with the very small difference between highly skilled (12%) and low skilled (10%) blue collar occupations. Finally, it is notable that the difference between white and blue collar occupations is so great that it overrides

[93] Occupation is defined according to the ISCO-88. Highly skilled white collar, includes legislators, senior officials and managers, professionals and technicians and associate professionals; Low skilled white collar includes clerks and service workers and shop and market sales workers; Highly skilled blue collar (6+7) includes skilled agricultural and fishery workers and craft and related trades workers; Low skilled blue collar (8+9) includes plant and machine operators and assemblers and elementary occupations. Armed forces are excluded.

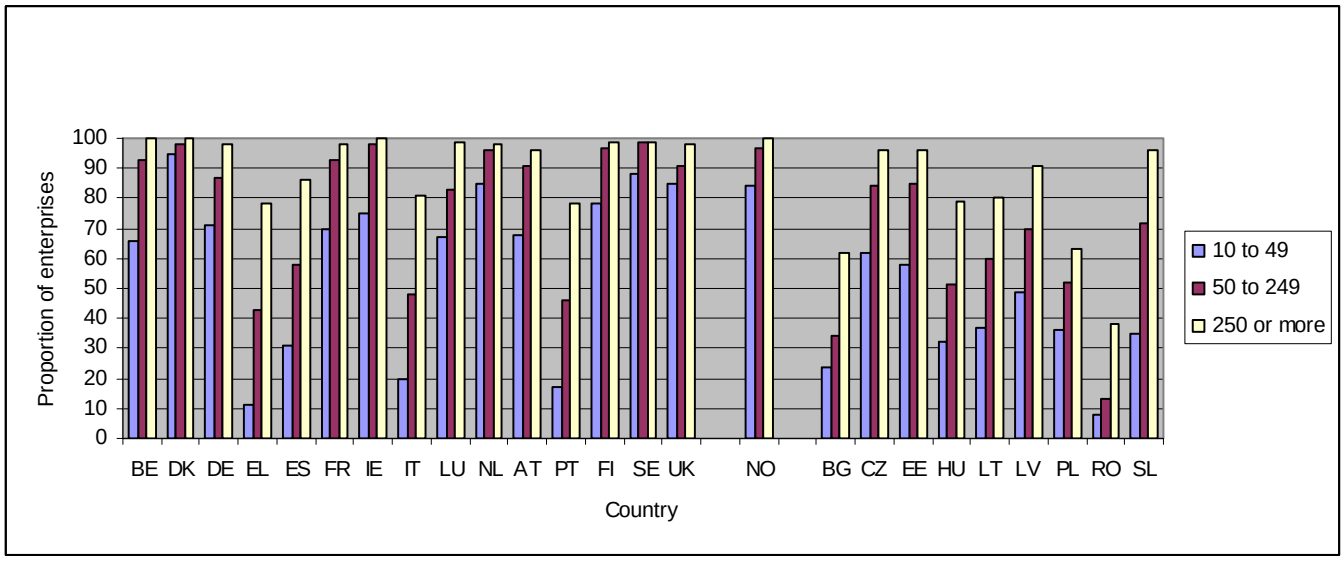
differences in skill levels. Thus, low skilled white collar have an EU average of 19% participation whereas high skilled blue collar have a rate of only 12%.

These results are relatively consistent with those obtained by IALS in the mid-1990s. IALS grouped workers into six different groups, some of which are in the same category in the LFS, and showed that managerial occupations stand out as the occupation with the highest incidence of education and training, followed closely by technical occupations. Intermediate non-manual occupations in clerical and sales areas occupied an intermediate position with respect to training overall and in job-related training. The lowest incidence of both overall and job-related training occurred in skilled manual occupations and machine operatives.

7.4.5. Firm size

Most commentators on job-related training argue that small firms are less likely to provide training for their workers, mainly because of dis-economies of scale, whereby: (1) smaller firms may have higher training costs *per employee* than larger firms because of difficulties in spreading fixed training costs of training over a small group of employees; and (2) because the loss in production incurred by having even one employee in training may be higher for smaller than for larger firms. This is confirmed by CVTS2 data presented in the figure below. In all countries a higher proportion of larger enterprises offer continuing training to their employees than medium sized or small companies. Indeed, in some countries (especially Italy, Spain, Greece and Portugal) the difference is quite marked. In several countries (Belgium, Denmark, Ireland, Norway) all surveyed companies with 250 employees or more offered continuing training to their employees.

Figure 7.10: Enterprises offering continuing training as a proportion of all enterprises according to class of enterprise size



Source: CVTS2 (legend numbers refer to number of employees in enterprise)

A similar patter arose from the IALS which showed that, in general, those working in larger firms are more likely to participate in training than those in smaller firms. Thus, averaging across the *IALS* countries, 29% of those working in firms with fewer than 20 employees received some form of education or training, compared with 52% of those working in firms with 500 or more employees, 42% of those with 100-499 employees and 38% of those with 20-99 employees. IALS also showed that the correlation between firm size and participation is even stronger in the case of job-related training, to which the theoretical arguments are most pertinent: the 46% participation rate of those in firms with 500 or more employees is double the rate among those in the smallest firm size category (23%).

7.4.6. Gender

Gender equality is one of the priorities of the EU across a wide number of policy areas. Equality of access to adult education across the genders has been addressed to differing degrees across EU countries. Current initiatives include, for instance, adult schooling during the day to try and encourage women with children to work towards qualifications in Greece, while Lithuania and Estonia also have programmes for women returning to work. In Iceland, some dedicated educational centres have been set up by women for women.

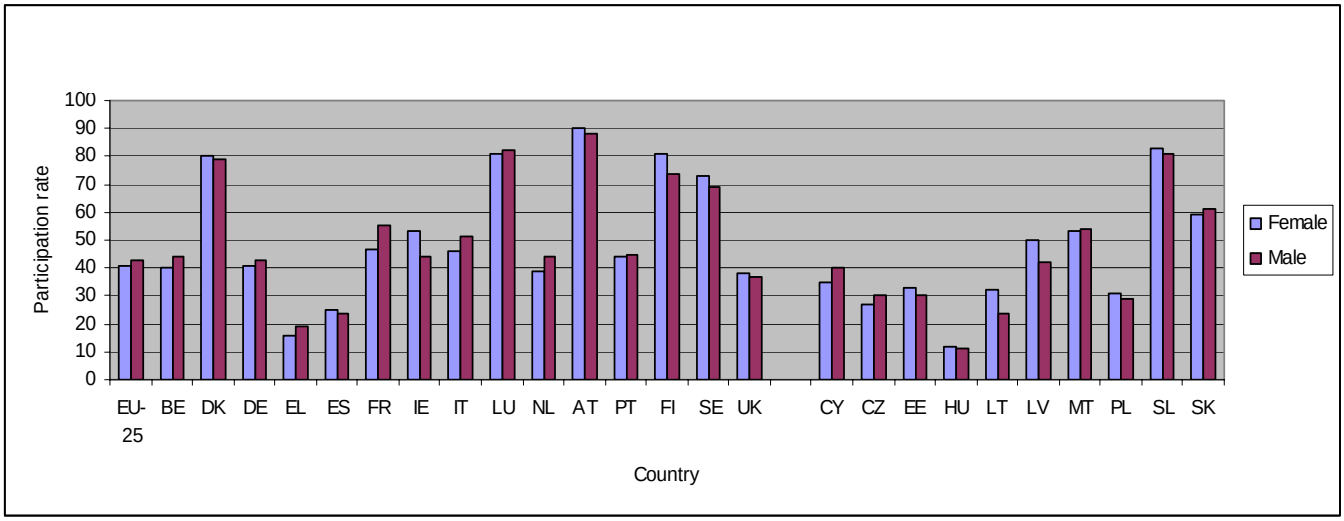
In the 1990s IALS found that in general men were somewhat more likely to participate in some form of education or training than women, although this pattern was reversed in Ireland and Sweden. On job-related training the IALS showed that the male-female disparity widened; on average, over 30% of adult males received job-related training in the previous twelve months, compared to 23% of women.[94] Among the employed, however, the gender difference in training observed for the entire adult population was reversed: women in employment were more likely than men to participate in further education and training. The IALS also showed, nevertheless, that men tend to obtain training of longer duration than females in most countries. Moreover, the survey showed that in every country a higher percentage of men than women who participated in training, received financial support from employers, while a greater percentage of women provided funding for their own education and training.

Data from the CVTS2 for the late 1990s shows that women in employment were more likely to receive training than men. There were, however, several exceptions to this general rule – the UK, the Netherlands, Bulgaria, the Czech Republic, France, Italy, Germany, Hungary, Latvia and Lithuania. In any case, differences between both sexes were small, except in the case of Norway (where a much higher proportion of females than males participated in training courses), Czech Republic and Belgium (where the opposite pattern occurred).

Finally, using date from the LFS we see in the figure below that, consistent with the findings from IALS and CVTS2, participation rates between males and females in any kind of learning are relatively small, but on average males tend to participate in any kind of learning slightly more than females.

[94] In the Swedish survey the distinction between job-related and other training differs from that adopted in the other countries and job-related training appears to be substantially underestimated, so job-related training is not separately reported for Sweden in the present paper.

Figure 7.11: Participation rate in any kind of learning by gender



Source: EUROSTAT, LFS ad hoc module on Lifelong Learning 2003. Target population: 25-64 year old. Informal training is not included in the UK.

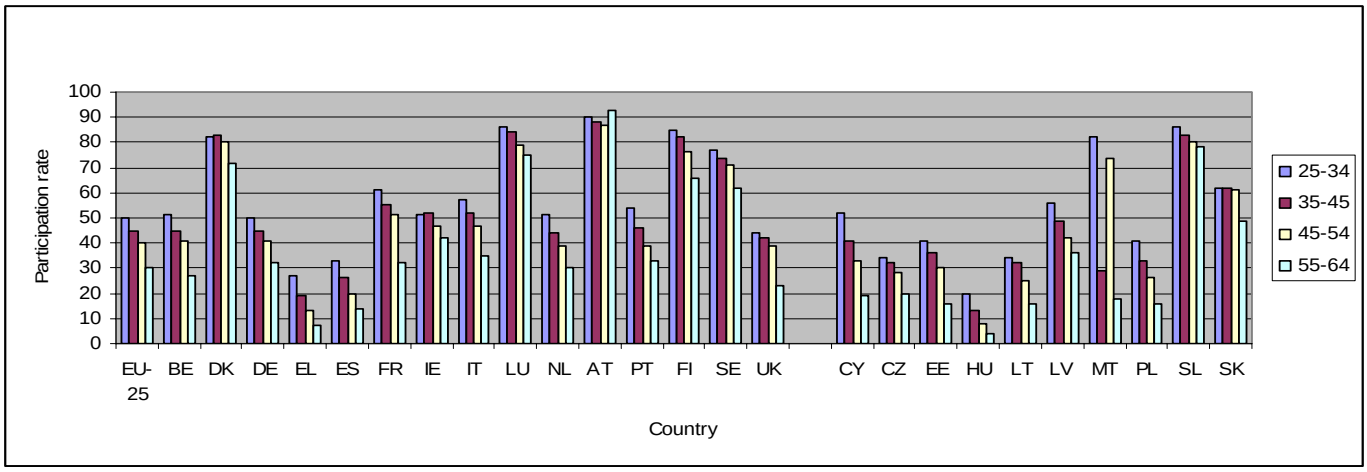
Some countries (e.g. Denmark and Austria) manage to achieve high participation rates with a very good gender balance. In contrast, Ireland, France, Latvia, Lithuania, Italy, Cyprus, Finland and the Netherlands have the greatest gender imbalances, with a difference in participation of 5 percentage points or more.

7.4.7. Age group

The incidence of access to learning declines with age. IALS showed that averaging across countries, about 42% of those aged 25-34 participated in some form of education or training, compared to 40% of those aged 35-44 and 28% of those aged 45-64. The sharp decline in training received by the older age group is repeated in all countries. Job-related training shows similar age-related patterns.

This is confirmed by LFS data, which covers a wider number of countries. The LFS also reveals some exceptions, with citizens over 55 engaging in more learning activities than those in the age group 45-55 in Austria, but the pattern of declining engagement in learning activities with age is fairly universal.

Figure 7.12: Participation rate in any kind of learning by age group



Source: EUROSTAT, LFS ad hoc module on Lifelong Learning 2003. Target population: 25-64 year old. Informal training is not included in the UK. Figure in the legend refer to age groups.

These age related patterns in the intensity of training may reflect economic rationality, since older citizens/workers may already possess a significant stock of skills and competencies, and investment in training of older workers will, on average, have a shorter time-span within which to recoup the cost of that investment. However, this near-universal pattern of a decline in training intensity over the life-cycle should be regarded as posing a weighty challenge to those seeking to promote lifelong learning.

Chapter 7 Summary

Participation rates in lifelong learning vary widely between EU countries. Whereas European leaders such as Sweden and Denmark have participation rates of around 30% most European countries struggle to reach the 5% mark. The European average is 9.9%. The Lisbon objective of 12.5% of the population participating in lifelong learning, therefore, is still a distant goal for many European countries, although achievable by the EU as a whole by 2010. The increase in the period 2000-2004 for the EU as a whole has been exactly 2% or an average of a 0.5 percentage points increase per year, which would be sufficient to reach the target if sustained for the remainder of the decade. However, the data overstates progress as a result of breaks in time series and there has been in reality only a slight real progress compared to 2000, despite the nominal two percentage point increase. Additional efforts are therefore needed to reach the benchmark of a 12.5% participation rate in 2010.

Our quantitative data analysis suggests that the extent of participation of works-councils in discussions regarding CET, the existence of a national training levy, and the existence of a sectoral training levy are negatively related to access to adult education. By contrast, the degree of technological change, the strength of collective bargaining over training issues and joint governance of training funds by social partners have a positive correlation with access to lifelong learning.

Regarding inequalities in access by different groups LFS data shows that the most important variations are seen in the following areas: age where the rate for 25-34 year olds is 50% and for 55-64 year olds 30%; and level of educational attainment, with participation being greater amongst people with higher levels of attainment. Geographical region, gender, occupational status, occupation, and firm size were also found to influence rates of access to adult learning.

8. CONCLUSIONS

8.1. Introduction

This report has analysed access to lifelong learning, focusing on three main areas:

- pre-primary education
- tertiary education
- adult education.

Developments since 1995 and particularly 2000 have been given special consideration, since the study has as its key policy context the tracking of progress made in relation to widening participation in lifelong learning since the adoption of the Lisbon Strategy.

The focus of the project has been on the analysis of statistical information on access to education, gathered from EUROSTAT, EURYDICE, UNESCO, the World Bank and OECD databases. Extensive qualitative information has also been provided to complement this analysis. The report has presented a mapping exercise, outlining recent trends in access, presenting the results of a statistical analysis of access determinants and a review of inequalities in access due to different socio-economic and demographic characteristics. From this work, a number of conclusions and recommendations can be drawn in terms of the availability and quality of data on access, the trends observed and the determinants of access. These are presented below.

8.2. Data availability and data quality

Access to education is a complex area; how to define access is in itself a challenging conceptual task, in particular when looking at areas such as adult education and non-formal and informal learning. Adding to the complexity of the project was a need to adopt ways of studying the factors affecting access which could offer policy insights to relevant policy-makers, since access can in principle be affected by a wide range of variables, some of which render themselves adequately for quantitative analysis, some of which are very difficult to measure and quantify.

During this project we collected data on three main areas:

- Data on access
- Data on educational inequalities
- Data on variables whose effect on shaping levels of access we wanted to test – framework variables.

The focus was on recent data that covered the whole or part of the period 1995-2004, and covered all or most of the 33 countries of relevance to this study. It should be noted that data availability has improved markedly in the last few years, and there are data series available for most years for most countries. However, some gaps remain. We review findings in

relation to the availability of data for each of these areas below, where we also offer recommendations for future data collection.

Before that, it is important to point out that the access indicators currently available and reported in this study are fairly aggregate. A complementary indicator to access must be quality. This is true for all three areas of education covered in this report. Most people would agree that there is little point in expanding access to education if it is at the expense of the quality of the educational experience. There should be no trade-off between access and quality. However, it has not been possible to check in the context of this report the full range of data available on types and quality of education and training, and assess whether increases in access to education were correlated in any way with variations in the quality of the education accessed.

8.2.1. Data on access to education and training

Regarding the availability of data on access to pre-primary education, tertiary education and adult education, availability and coverage have been found to be of satisfactory quality. Data on gross and net enrolment rates in pre-primary and tertiary education are available from international databases, like the World Bank's Ed Stats. This data, however, is not readily available from EUROSTAT, and variations from year to year in national figures suggest that there may be some issues with data quality and reliability in the World Bank data.

Whilst data on gross and net enrolment rates in pre-primary education establishments is collected periodically and has a good coverage, there is little information on access to pre-primary learning at home. Since this is an important dimension of pre-primary education, the lack of data limits the relevant information that we can offer; lack of this data may lead to inaccurate conclusions when assessing figures for enrolment in pre-primary education.

Data on access to adult education is collected through the European Labour Force Survey. This data is of good quality and has a good coverage. The conceptual resonance of the indicator in the context of the goals of the Lisbon Strategy is also satisfactory.

Whilst this report has gathered and analysis data on access to education and training, it is necessary to highlight that this data should be complemented with data on quality. We have seen that there has been an increase in access to education and training over the last decade in the EU. A critical issue from here would be to examine whether this expansion has been at the expense of quality in the education and training provided. Some commentators have suggested, for instance, examining the cases of the UK and the USA that the rapid expansion of tertiary education accompanied by reductions in spending per student has not contributed to the enhancement of quality[95], thus questioning the value of expansion "per se".

[95] Grubb, W. N. (2004) "The Anglo-American approach to vocationalism: the economic roles of education in England" SKOPE Research Paper 52, Oxford and Warwick Universities.

In view of the above and in relation to data on access to education and training we recommend that:

1. *EUROSTAT produces data on gross and net enrolment rates in pre-primary and tertiary education on an annual basis. The background data necessary for the production of this indicator is already collected by EUROSTAT, but the calculations to produce gross and net enrolment rates are not undertaken by EUROSTAT. Therefore this data is not available from EUROSTAT to interested audiences who are not familiar with the processes for calculation of gross and net enrolment rates from raw data.*
2. *Data on access to child learning at home is collected on a yearly basis to complement data on access to pre-primary education outside the household. This indicator could be based on the conceptual work already developed for the European Time Use Survey, but this is not an annual survey.*
3. *The need for additional data on quality be examined.*

8.2.2. Data on educational inequalities

A second area for data collection in the context of this study has been educational inequalities. Whilst overall levels of access are the point of reference of the Lisbon Strategy indicators, Lisbon also places great emphasis on universal access to education and training; no group should be systematically excluded from access to lifelong learning opportunities.

There is however a lack of data on educational inequalities collected on a periodic basis. The only inequality variable for which data is periodically gathered for pre-primary and tertiary education is gender inequality, whereas no comparable data could be found on socio-economic background and ethnic background. Differences in access to adult education by socio-economic background may be proxied by looking at data on occupation. However, there is no equivalent possibility in the cases of pre-primary and tertiary education.

In the case of access to adult education there is a wider range of inequality variables that are of interest. Data for these is available, although from surveys that are not collected annually. The study team used data most notably from the LFS ad hoc module on Lifelong Learning 2003, but also from IALS and CVTS2 to report on those inequalities. Whilst this offered a snapshot of the situation in a range of countries at one point in time, it does not allow progress to be tracked precisely since the adoption of the Lisbon Strategy given the different definitions used in these surveys.

In view of the above we recommend that:

1. *Data on the socio-economic and ethnic background of people enrolled in pre-primary and tertiary education is collected. It may be possible to do this by agreeing common definitions and collecting administrative data from national sources.*
2. *A new wave of data on inequalities in access to adult education is collected through the CVTS4 or the LFS, so that progress since the adoption of the Lisbon Strategy can be tracked.*

8.2.3. Data on framework variables

Explaining variations in levels of access to education and training is an important but methodologically and analytically complex task. Not only that, it is also a very data-demanding exercise. As expected, data of sufficient quality, coverage and conceptual resonance for all variables suggested in our frameworks could not be found. This has meant that in our quantitative analysis several variables included in our frameworks needed to be dropped. The relationship of some of these variables, for which some kind of data was available, was presented through bivariate analysis.

Less data was available for the framework on access to pre-primary education than for the two other frameworks. Five variables could not be included in the multivariate analysis owing to of lack of coverage (either country or time coverage). Availability of data was much better for the framework on tertiary education. In this framework, only one variable – individual perception of the benefits of access to tertiary education - had to be dropped from the analysis due to lack of data. Three variables had to be dropped from the multivariate analysis of access to adult education due to lack of data, but also strong assumptions had to be made regarding the lack of variation on a wide range of institutional variables for which no periodic data was collected; assumptions that may only partially hold.

It would not be necessary to collect information about all variables omitted from our analysis due to lack of data through annual surveys, since some of them are institutional variables for which data could be collected in one wave from ministries of education, with a follow-up survey every two years or so to establish whether any changes had taken place.

We recommend the following:

1. *Data on the incidence of single parenthood and dual earning households should be collected on an annual basis through surveys (e.g. the European Labour Force Survey).*
2. *Data on average private costs of pre-primary education per child in pre-primary education, availability of parental leave and cultural norms regarding the age at which children should start pre-primary education should be collected from National Ministries of Education and Work or Eurydice every two years, by means of a standardised questionnaire.*
3. *Data on individual perceptions of the benefits of higher education is likely to be difficult to obtain or to fit into existing surveys and therefore efforts in this direction*

would be unlikely to be fruitful. We therefore recommend that attention is paid to examining national surveys for usable information.

4. *Data on the number of learning organisations in Europe is collected through one or more of the European Working Conditions surveys.*
5. *The feasibility of collecting data on the benefits of training for the individual and public investment in education for adults should be explored. This is an important but difficult task. Data of quality in this area is not yet available, and it is complex to calculate given that tax breaks and other forms of subsidies must be taken into account.*

8.3. Access trends and inequality in the EU and amongst its international competitors

8.3.1. Access trends

This section provides an overview of trends in access to pre-primary, tertiary and adult education in Europe, from 1995 to 2004. Some reference to levels of access and trends in some of the EU's international competitors (USA and Japan) are also included.

The first indicator on access to education reviewed in this report was gross enrolment in pre-primary education. In relation to this indicator, trends since Lisbon (2000) are difficult to establish, since data is only available to 2002. However, looking at trends from 1995 it is clear that gross enrolments in pre-primary education are increasing in most EU countries. Trends in all groups of countries presented are towards greater gross enrolment ratios. This trend is more pronounced in the New Member States and Candidate countries, which could be expected given their starting situation in 1995, with lower gross enrolment rates than the old EU-15 and EEA countries. Whereas most EU-15 countries had a rate of 80% or above, most New Member States and Candidate countries clustered around the 60% mark during the period covered. Most EU countries are ahead of international competitors such as Japan or the USA. Since there is no explicit target linked to Lisbon for access to pre-primary education it is not possible to judge whether the presented rate of increase in relation to this indicator is to be judged satisfactory or otherwise politically. It is worth noting, however, that as our qualitative review revealed, expansion of pre-primary education is likely to continue since the argument that early childhood education should be available to all children, as a child's right rather than a parent's, has gained further legitimacy and resulted in increased public interest and investment over the past 10 years. This is important since equitable access to quality pre-primary education can strengthen the foundations of lifelong learning and support the broad educational and social needs of families.

In the case of tertiary education, during the period covered by the study, EU-15 countries had gross enrolment rates in tertiary education that varied between 40% and almost 90%. This is a very large degree of variation. Moreover, the data presented showed that differences between leaders and laggards have not reduced during the period covered since there is a general trend towards increasing participation rates in virtually all countries. We can also see in the available data that enrolment figures increased substantially more after 2000 than in the period 1998-2000 in EU countries, which could be linked to an accelerated rate of progress towards the Lisbon goal of making tertiary education accessible to all. However, enrolment

trends in tertiary education in EEA countries, Japan and the USA tell a similar story, with heavy increases after 2000. This may point to structural reasons or data-collection explanations, rather than an impact of the Lisbon Strategy on national policies in education and enrolment patterns. However, some impact from Lisbon developments in increasing access - in particular the creation of two-cycle degrees in HE - cannot be ruled out. Within the EU participation rates in New Member States and Candidate countries are in general lower than those in EU-15 countries. It is worth noting the very low gross enrolment ratios in Japan and Iceland, which stand in contrast to Norway and the USA which both exhibit very high participation rates, well above the EU average, although below the European leaders Finland and Denmark.

Finally, in relation to adult education, we have seen that participation rates are still low, behind the Lisbon target of 12.5% by 2010, although there is an upward tendency in several European countries. The European average currently stands at 9.9%. This would imply a yearly rate of progress of 0.5 percentage points per year since 2000. However, the data overstates progress as a result of breaks in time series and there has been in reality only a slight real progress compared to 2000, despite the nominal two percentage point increase. There is, moreover, huge variation in access between countries and a concerning downwards trend in participation in adult education in some European countries in the period covered. This downward trend is in contrast to the experience of pre-primary and tertiary education, where such patterns are extremely rare in our data. The low participation rates in adult education in many European countries are in contrast with the experience of EEA countries. Whereas both Norway and Iceland have participation rates around 20-25%, most European countries struggle to reach the 5% mark. The qualitative review for adult education also showed divergence in European countries in another set of key areas. As such, although it was evident from the review that adult education and training is becoming an increasingly important component in countries' strategies for lifelong learning, both the policy tools adopted and the responsibilities of different stakeholders differ significantly between countries. The policy response to enhance access across the EU is thus far from uniform. Our qualitative review – attached to this report - thus argues that the approach adopted to adult education and training in each country should be inextricably linked to its wider institutional and socio-economic framework, and that the differences observed between countries are partly a reflection of wider differences in their socio-economic fabric.

8.3.2. Inequalities

In addition to reporting on overall levels of access, this study also looked at a range of inequalities. In this respect, we saw that there are certain differences in the level of access to pre-primary and tertiary education by gender, but these are in general not substantial. In most countries the general trend is for there to be a slightly higher proportion of females accessing pre-primary and tertiary education than males. These inequalities, however, tended to widen over the period analysed, so that they may become a matter of greater concern in the future.

With regard to age, we found a relatively low proportion of students aged over thirty in tertiary education, which may be a matter of concern when thinking of access to tertiary education from a lifelong learning perspective.

In relation to adult education, we were able to identify a range of important inequalities in access, which exacerbate the inequalities generated in the formal education system. We found the following variables to be sources of inequality: level of prior educational attainment; occupational status (those in employment are more likely to participate in education and training than those who are unemployed or inactive); occupation (those who are in white collar and/or more highly skilled occupations tend to participate more); and firm size. By contrast, age was negatively correlated to access to adult education – so that those who have more recently participated in the formal education and training system are more likely to receive more adult education than those who have not. Patterns regarding gender inequalities in access to adult education are unclear.

Additional information on access inequalities was provided by a set of case studies undertaken as part of the study and annexed to this report, and to which the interested reader is referred. These focus on recent policy-initiatives that have been successful in dealing with some of the inequalities mentioned above (those due to differences in socio-economic background, ethnicity, citizenship status (in terms of immigrants and the Roma population) and rural residence). They also dealt with one other source of inequality, namely disability. The case-studies present information on policy/programme design and implementation, along with the outputs achieved (when available). The main conclusion that can be extracted from this set of case studies is that, despite some widespread opinion that public policy has much difficulty in reducing inequalities in access to education, public policy can make a difference.

8.4. Determinants of access and policy recommendations

In addition to mapping the existing trends in access to education and training, this report aimed to provide information on the factors affecting levels of access, to aid policy-makers in a range of education-related policy decisions. As such, the report has presented a range of information on the determinants of access to education and training at the stages of pre-primary education, tertiary education and adult education and training. The information presented was both quantitative and qualitative.

Our quantitative analysis tested three analytical frameworks developed from a review of relevant literature. Although the analysis performed had some limitations due to lack of data (as reviewed above in these conclusions), they nonetheless proved the relevance of the frameworks developed. Most variables incorporated into the analysis proved to be significant in our regressions. This means that they have a systematic relationship with the dependent variables we used (access levels). As expected, the effect of individual variables varied. More surprising was the direction of the relationship that some of the independent variables were found to have with the dependent variables employed. Thus, pre-primary education being a statutory right, the starting age of pre-primary education and financial aid to students in tertiary education showed negative relationships with levels of access, for reasons already discussed.

The analysis we undertook also showed the relevance of variables strictly related to the educational system. This was particularly so in the case of tertiary education, where there was a clear and significant finding that levels of public funding had a substantial effect on the

level of access, which is a significant finding with unambiguous policy implications. In a similar vein, our qualitative review of pre-primary education also offered evidence that there is a link between the level of government investment in pre-primary provision and the rate of participation, although a high level of investment does not always directly yield improved access because of a number of other variables, such as quality, the staffing ratios and the level of investment required for modernisation, stressing again the importance of variables that are endogenous to the education system in explaining levels of access.

The analysis also highlighted the importance of going beyond the education system to shape levels of access. Thus, levels of part-time employment were found to be positively correlated with net enrolment rates in pre-primary education; whilst in adult education aspects of national industrial relations systems and technological change were found to have a positive and significant effect on increasing levels of access. Such findings highlight the fact that action to improve access cannot be the responsibility of national Ministries of Education alone: joint working between government departments is important, as is the involvement of external agents such as the social partners.

According to the data presented in this report, which covers the three years after Lisbon, we can conclude that there are clearly a number of positive trends in relation to access to education but it is equally clear that further progress is needed. Indeed, vigorous action should be taken by Member States in the coming years if the targets set at Lisbon are to be achieved by 2010. Getting to grips with the causal mechanisms behind access levels is a first and crucial step towards designing policy solutions that are up to the challenges posed by Lisbon and this report has sought to provide the foundations for this process. Greater understanding will be developed as other data becomes available in the coming years but tackling some of the current shortcomings in data that we have identified will also be vital if we are to understand more fully what is happening in Europe as we approach 2010.

Chapter 8 Summary

Data availability for access to education has improved markedly in the last few years, and there are data series available for most years for most countries. However, some gaps remain. Based on the work developed for this report ECOTEC recommends:

1. *EUROSTAT produces data on gross and net enrolment rates on an annual basis.*
2. *A new indicator on access to child learning in the household is collected*
3. *The need for additional data on quality is examined*
4. *Data on the socio-economic and ethnic background of people enrolled in pre-primary and tertiary education is collected.*
5. *A new wave of data on inequalities in access to adult education is collected through the CVTS4 or the LFS, so that progress since the adoption of the Lisbon Strategy can be tracked.*
6. *Data on the incidence of single parenthood and dual earning households is collected on an annual basis through surveys*
7. *Data on average private costs of pre-primary education per child in pre-primary education, availability of parental leave and cultural norms regarding the age at which children should start pre-primary education is collected by means of a standardised questionnaire*
8. *Data on the number of learning organisations in Europe is collected through one or more of the European Working Conditions surveys.*
9. *The feasibility of collecting data on the benefits of training for the individual and public investment in education for adults is explored.*

The chapter also reviewed access trends and inequalities in the EU, and argued that vigorous action is needed from Member States to achieve the Lisbon goal and targets by 2010. Moreover, the chapter argued that in order to achieve access to education and training for all changes in a wide range of policy areas, beyond education, are needed.