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Comparative Analysis of Transitions from Education to Work in Europe

**Educational attainment of young people in
the European Union:
cross-country variation of trends over time**

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Abstract

The growth in educational attainment is one of the most fundamental social changes in Europe during recent decades. Nowadays only a small proportion of young people leaves school immediately after compulsory age. On the other hand, increasing levels of youngsters achieve tertiary education. Furthermore, the share of young people that attend any form of vocational education has increased. Lastly, female educational participation rates have risen strongly and differences in the level of education attained by men and women are diminishing or even disappearing. Knowledge about the basic mechanism behind the expansion of education and how it is related to institutional structures and reforms of the various educational systems in Europe is necessary for the understanding of the variability of transition processes from education to work in the European Union. This paper intends to provide this background. Besides a detailed description of the educational systems in the European Union, we document changes in the educational attainment of young people in the member states during the last decades. For this purpose, we make use of data from the European Community Labour Force Surveys (ECLFS) that cover the period 1988-1997.

Introduction

In recent decades educational participation has grown everywhere in Europe, but from different starting points, in different ways and with different results. At the end of the 20th century the educational systems in various countries of Europe probably differ more among each other than ever during this century. The educational systems in different countries have different formal structures. They offer different curricula that are linked in different ways to each other. Also, the levels at which examinations can be taken are hardly comparable one to one. Even the conception of an examination varies. In most of the countries one can pass or fail an examination, in other countries such an executioner's axe does not exist and one can only pass an examination with varying levels of certified competence. The labour market value of more or less equivalent examinations may vary considerably between countries. Many countries have fundamentally changed their educational system in recent decades while others have left their educational systems relatively unchanged. The understanding of the variability of transition processes from education to work in the European Union presupposes knowledge about the basic institutional structures of the educational systems in Europe, of their institutional change in recent decades, as well as of the basic patterns of educational expansion. This paper intends to provide this background. First, we start with a description of the institutional structures and reforms of the different educational systems in the European Union. Second, we present some general results about educational attainment in the member states. Differences in the educational attainment process between men and women are described as well. Our purpose there is to compare the results for young people with those for older persons. Third, we look at the educational attainment of youngsters over their life-course. Is there an age-specific pattern of educational attainment and how does it differ between countries and between birth cohorts? Fourth, the main findings of this paper are summarised in the concluding part of it.

Institutional structures and their reforms

In practically all European countries educational expansion in the post-war decades was connected with more or less fundamental educational reforms for several reasons. Educational reforms were implemented in order to enhance expansion, but also in order to satisfy or to channel the increasing demand for education. Reforms were urged in order to change the unequal distribution of education between gender, social classes, ethnic, regional or other social groups (Shavit and Blossfeld, 1993). Other pressures for reform came from the demands of the economy for different qualifications expected to be needed on the labour markets (Becker, 1964; Denison, 1962) or from political pressures to counter social problems (Collins, 1979) such as youth unemployment or general unemployment (Blaug, 1985). The course reforms took were most likely also affected by different educational knowledge, doctrines and ideologies available or dominating in various countries. Evidently depending on the specific aims associated with reforms and depending on the strength of the varying pressures for reforms, the reforms themselves differed. Given this rather large variety of

factors it seems rather difficult to single out with strong evidence the relative importance of any specific factor.

In the present paper we build on two starting points or basic hypotheses to understand the course of reforms observed in the various countries. A first starting point of a post-hoc understanding of the educational reforms connected with educational expansion is the observation of a general agreement in most political discourses among interest groups, political and economic leaders as well as among the relevant population groups - in particular parents and their children - that technological, economic and social development lead to an increased demand for higher qualifications.¹ For many years, it was indeed a continued experience that highly qualified jobs grew in number while many of the unqualified jobs disappeared. At any rate these beliefs of a general increase in the demand for qualifications can be assumed to be more widely shared than the conviction and the political will to change the unequal distribution of education among population groups. There are many examples of political opposition against reforms thought to alter the unequal distribution of education. Nowhere has there been serious opposition to increasing the supply of education. Countries certainly differed in the extent to which these concerns found support in the political arena.

A second starting point is an assumption of institutional inertia or institutional path dependency. It is assumed that the existing educational institutions and the national traditions in the set-up of educational institution and in the provision of education affect the course of educational reforms. Reforms build on what is already existing. In the early post war II years - the period before educational expansion - educational systems in Europe were rather similar with respect to the preparation of students for university education. All countries had typical tracks and educational institutions which lead to university education. These parts of the educational systems were well defined and long since established. In this respect countries did not differ very much. Large differences between countries, however did exist concerning vocational qualifications below the tertiary level. In some of the countries opportunities for vocational education were widely spread, in other countries they scarcely existed. Depending on the availability or non-availability of vocational education, educational reforms are expected to differ. Different ideas for reforms should emerge and have different chances for realisation, both on the secondary and on the tertiary level of education.

Given a tendency for institutional inertia and given a rising demand from the labour market for workers with higher skills and qualifications one should expect that in countries with existing systems of vocational education, these systems are used to satisfy the growing demand. Their growth should contribute at least in part to educational expansion. Countries without vocational training and relying mainly on general qualifications could start to build up systems of vocational training. But the more likely alternative is, that they rely on their own established educational traditions and mainly build up their systems of general qualifications. They will enhance educational participation by mainly

expanding general education and by reforming their system of general qualifications in order to attract more students and in order to manage and differentiate the growing number of students. An additional consequence will be that in the latter countries the demand for tertiary qualifications grows faster than in the former group of countries. In the following we briefly examine in view of these hypotheses the educational systems and their reforms during the last decades.²

Secondary level

On the secondary level, widely spread and formalised systems of vocational education mainly existed in the German speaking countries, in Denmark and in the Netherlands. In the Netherlands, vocational education was mainly organised in schools; in the other countries in the form of apprenticeships at the workplace combined with some formal education in vocational schools. In all of these countries quite large parts of the population received vocational qualifications beyond elementary general education already in the early post war years. In the course of educational expansion these countries basically conserved their institutions of vocational training as a crucial element in their education and training system even though the institutions of vocational training were partly reformed in order to adapt to technological, sectoral and occupational change. Participation in such training increased. At the same time reforms in the system of general education were affected by and designed in view of the parallel system of vocational training. Even if measures were taken to ease the transitions between the different educational tracks, the multi-track character of the educational system with the early separation of the school populations was maintained to a large extent. It is particularly revealing that - with the exception of Scandinavian Denmark - none of these countries introduced major comprehensive elements in their educational systems. From the defenders of early differentiation it is generally argued that the different educational tracks correspond to different abilities, performance and aspirations of children and that early differentiation is effective in preparing children for the varying types and areas of work in the labour market.

In the remaining countries occupation-specific education was less common or hardly existing. These countries tried to solve the increased demand for education and training primarily through reforms and the expansion of school-based, mainly general programmes, because this corresponded to the available practice of educational provision. These programmes kept their more general rather than vocational character. The primary target was to bring as large a proportion of the pupils as possible to as high a level of basic abilities as possible. Connected with the target of equalising educational opportunities, this led to the development of more or less integrated comprehensive schools. They were introduced - although in different versions - in practically all Western European countries without a fully developed vocational training system. Differential allocation of children into different tracks takes place - if necessary - as late in the education process as possible, usually not before the end of

¹ Some of the sociological theories (see for instance Braverman, 1974; Kern and Schumann, 1970) may have argued against such expectations, but the economic and political leaders rather expected an upgrading of the qualification structure rather than its downgrading or its polarisation.

² Based on CEDEFOP, 1982, 1990; OECD, 1995a, 1995b; see also Müller, Steinmann and Schneider, 1997

the tenth school year and is often connected with the transition from the lower to the upper level of secondary education. If in the higher levels of secondary education vocationally-oriented courses were also introduced, then in many countries these courses played a secondary role and often were considered second choice for those who did not succeed in the academic route (Shavit / Müller forthcoming). Since general education programmes remained dominant in the secondary school, in these countries the need and the pressures increased to provide vocationally oriented training on the tertiary level. For these countries one therefore should expect a more varied multiplicity of programmes offered and a stronger growth in educational participation on the tertiary level than in the former group of countries.

This simplifying and stylized representation needs a more detailed account in particular for the United Kingdom. Its education and training system has probably the highest level of institutional multiplicity of all EU member states. There is not only considerable variation between the regional Units of England, Wales, Scotland and Northern Ireland (for a detailed account see Raffe et al. 1999); the institutional setup is also less clearly structured along a few principles. In the United Kingdom the educational system has not been primarily created from above by central state regulation, but developed by initiatives from the civil society. This historical background is mirrored today in a relatively high degree of autonomy of the educational institutions in their organization, day-to-day running, student intake and curricular profile. A further manifestation of these traditions are the private educational institutions which in no other European country play such an important role as in the United Kingdom. Finally, already on the secondary level the pupils have quite large degrees of freedom in their educational choices. They specialize early in the educational career by relatively free selection from various modules offered, and they also choose among different requirement levels. There is even no clear concept of graduating from the secondary level, rather the performances obtained in the individual specialization areas on that level determine then the chances of access into various institutions and programmes at the tertiary level.

As to vocational training, a tradition of vocational qualification in the form of vocational apprenticeships did exist in the UK. However, apprenticeships were not very common, scarcely regulated and - in contrast to the German dual system - without a component of systematic teaching of formal, theoretical or other general knowledge. If a need for such qualifications was felt, it was satisfied in local group-run training centres or ad hoc through attendance of special courses. A large and varied supply of such courses developed in the Further Education sector of the UK training system. Further Education in the UK is not only more common than in other EU countries (see Welters and Wolbers, 1999). It also has several specific institutional characteristics related to other aspects of the UK education and training system. Graduates from both the secondary and the tertiary level of education enter the labour market at comparatively young ages. A substantial part of qualifications are then obtained in tandem to gainful employment, using the rich supply from evening and part time study programmes in institutions of

Further Education.³ Training is increasingly organised in modules. Students select modules - to a large extent at their own discretion - and accumulate credit points from exams and assessments in single modules. The selection of modules is less strictly constrained by a standard menu for fixed occupations. Rather it variably reflects the interests of the graduates or the assumed usefulness for particular jobs, which are much less conceived according to specific occupational competencies and jurisdictions than in Germany. Even though a large part of the educational institutions still have the primary mission of providing either general, academically oriented, education or vocationally oriented further education, the number of institutions offering modules of both types has increased. The recent reforms in the 1994 education act also make it easier to combine general and vocational secondary qualifications to satisfy the entry requirements for tertiary education (see Raffe et. al. 1998 on the problems of unifying academic and vocational learning).

Tertiary level

Beyond the universalisation of secondary education, in almost all countries a strong expansion of tertiary level education has taken place in recent decades. Almost everywhere this expansion of the tertiary level of education is connected with institutional reforms for the selection, management and channelling of the growing masses of students. Apart from the rising number of students who aim at a classical university education, the tertiary sector expands also by the fact that in most countries for increasingly more work areas training on the tertiary level is considered appropriate. Since with higher education usually higher status and better remuneration are connected, many occupational groups press for academic or semi-academic credentials. In different countries, different groups succeed for different reasons in achieving such professionalisation. Success thereby, however, tends to be greater, the less established traditions of vocational education exist on the secondary level. In Sweden, France and Spain e.g. education and training for nurses and for several other so-called medical auxiliary occupations are in the meantime clearly part of tertiary level education while they are clearly part of the secondary level in those countries which have a strong vocational element at the secondary level such as in Germany, Austria or Switzerland. In the course of the expansion of tertiary level education, the spectrum of qualifications on the tertiary level became more heterogeneous within the individual countries as well as between the countries.

The institutional reforms for the channelling of the growing student population and for the satisfaction of varying needs for education and training led in Europe to a rather varied tertiary education landscape with different principles of organisation, training programmes, exams and certificates. It is extremely difficult to gain a clear representation of this diversity. Simplifying one can crystallise three main types. Two of them can be differentiated according to whether training programmes with differently demanding termination levels are organised in *parallel* or *sequence*. For the time being we consider the UK system a part even though it includes elements of both other types.

³ The drawback of the often stressed early integration into working life consists thus in a transition into gainful

A clear example of predominantly *parallel* segmentation is Germany's system of tertiary education. Beside the classical *universities* the sector of the *Fachhochschulen* (*professional colleges*) was established. This sector is institutionally segmented from the universities. Distinct from the science-oriented universities the Fachhochschulen have developed their own specific training programmes and courses of studies with a profile, which is strongly oriented towards application, practice and occupational identities. There is not much mobility between the two segments of tertiary education. The strong occupational orientation of the Fachhochschulen clearly corresponds to German education traditions. On the tertiary level, a type of training programme is developed, which offers qualifications which are as closely related to specific vocational activities as the vocational qualifications traditionally offered on the secondary level. This analogy to vocational training at the secondary level is still more pronounced in the so called *Berufsakademien* (occupational academies), in which the dual model of education and training known from the secondary level is replicated on the tertiary level. A similar parallel structure of two major institutions of tertiary education was also established in the Netherlands, in Denmark and Norway. In Austria and in Switzerland reforms are being implemented at present, which will likewise transform the tertiary level of education from one more or less exclusively dominated by the traditional universities toward this model of two parallel segments of tertiary education. Interestingly - with the exception of Norway - all of these are countries with a strong vocational component at the secondary level.

The second type of structure of tertiary education is *sequentially* organised. An example corresponding to a large extent to this model is France. In a somewhat simplified representation the system of tertiary education in France is structured in three cycles usually of two to three years duration. After each cycle a certificate qualifying for gainful employment can be obtained. Access into the following cycle is dependent on the successful completion of the preceding cycle. Along these principles the tertiary education system in France has expanded enormously. However, a large proportion of students is selected out of the educational system into working life after a short study-period of one to two years. The number of those, who are admitted to the higher cycles- sharply selected according to achievements in the system -, has grown only slowly. Likewise the *Grandes Écoles* have survived educational expansion relatively unchanged. Access to them continues to be highly selective. This solution mirrors the French educational traditions since the French revolution and particularly since Napoleon: An intimate link of the idea of elite formation and elite selection with the idea of just and democratic selection which according to French educational thinking can be accomplished, if the selection takes place according to criteria of performance shown (viz. e.g. Prost 1992; Brauns 199â, 1998b). Belgium, Spain and Portugal followed the French model of a sequential organisation of the tertiary level of education to a large extent.

The third, relatively distinct model developed in the United Kingdom. Several elements of the specific historical traditions on which the recent developments are built have already been described in discussing the secondary level. One important characteristic of the UK system is precisely that the

employment without specific or with only semi-finished vocational qualifications.

boundary between the secondary and the tertiary level is less clearly marked. First, related to the lack of a concept of graduating at the secondary level of education, the criteria and requirements for access into institutions of tertiary education vary to a large extent. Differences in the required performance and in public recognition between tertiary institutions of the same type are substantially stronger than in Germany or France. Secondly, also the special set-up and development of vocationally oriented training and the strong emphasis of further education has contributed to the today extraordinarily large heterogeneity of the university system in the United Kingdom. In recent years large parts of Further Education became integrated into the UK system of tertiary education. In particular with the integration of the earlier Polytechnics into the university system the variety in the profiles of universities has increased strongly. Many institutions within the university system deliver courses and degrees in a large range of qualifications ranging from higher level vocational training or further education to traditional academic degrees while others have retained a more academic character. Third, in many institutions modularization is increasing. The mixture of students with various educational backgrounds and careers and the composition of those studying full time for their first degree and those who combine work and study to upgrade their qualifications are more varied than in other countries.

Germany, France and the United Kingdom are described here as the basic types of organisation of tertiary education in the countries of the European Union. Other countries have been allocated to one of these types according to closest similarity. Variants of tertiary education institutions with more or less clear similarities to the basic types exist in other European countries. The Republic of Ireland's system has many similarities to the United Kingdom. But it offers even fewer opportunities for vocational training and concentrates even more on the provision of general education. It also lacks the broad supply of Further Education. Sweden developed itself away from its earlier Humboldtian university system and moved toward the English and American university model. Italy, on the contrary, has probably reformed its system of tertiary education least of all European countries. Besides the universities (with the traditional *Laurea* degree) only a few additional educational options on the tertiary level have been created. Furthermore, although the number of students has increased, only very few of them (even fewer than in Germany) accomplish the final degree.

The development of educational attainment in the European Union

How did the educational level of the population change in different European countries since World War II? The best way to answer this question is to look at the differences in achieved education between successive birth cohorts. The younger a cohort is, the more its members should have benefited from the general expansion of educational supply and demand. Therefore, the proportion of highly qualified persons should be higher in younger cohorts, the proportion of less qualified persons should be lower. We focus on two indicators, namely on the lower and upper part of the educational range, based on the seven-level International Standard Classification of Education (ISCED). The first group contains persons with a basic education (usually compulsory schooling) up to a lower secondary level at the most (ISCED0-2). The second group is based on individuals with a broadly

defined tertiary education; it consists of those who earned degrees beyond the *Abitur*, the *Maturität*, the *Baccalauréat* or beyond other certificates of the upper secondary level (ISCED5-7).

The differentiation of the various kinds of qualification levels and the identification of similar levels across countries is a difficult task, because of the different structures of the educational systems. In particular, it is problematic to establish equivalencies among different tertiary level certificates in different countries. Some countries classify certain programmes as secondary level education, others as tertiary level education. For the current analysis, we use a broad rather than a narrow definition of tertiary degrees, because this is more suitable for the available information from the Community Labour Force Survey (CLFS) data set. However, one has to bear in mind that some degrees are classified as tertiary certificates although they are understood as secondary degrees in the specific country.

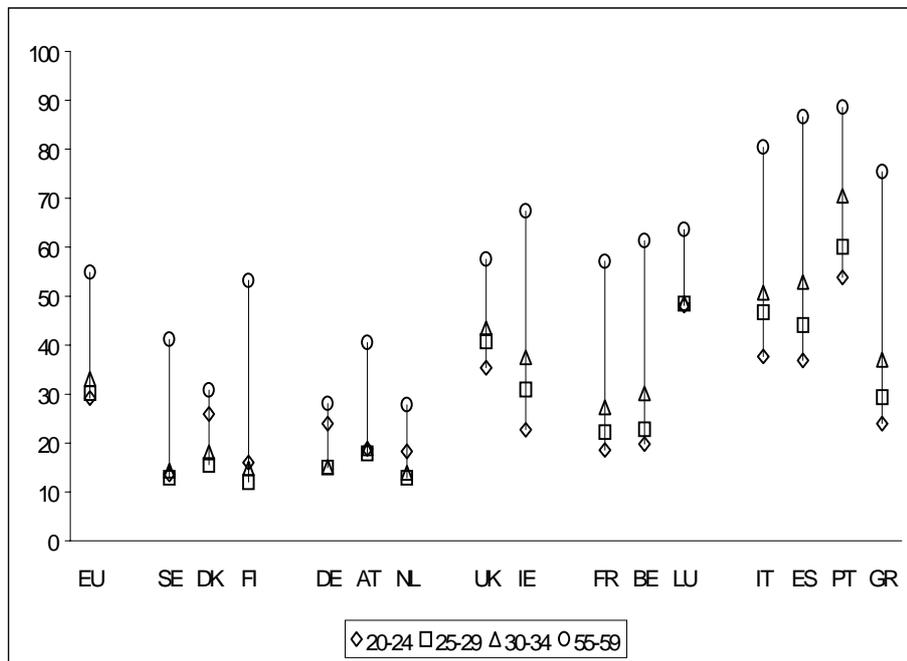
The birth cohorts for the analyses are selected in the way that the change of educational participation can be illustrated from the end of World War II to the present (or as close as possible to the present). The oldest cohort is represented by the birth years 1936-1942. Their members were 55-59 years old at the time of the interviews in 1996/97. Many of them are already retired or prepare for their retirement. Essentially, these are student cohorts of the first post-war years. They started school either even during the war or immediately thereafter. The youngest cohort (age group) considered varies depending on the indicator studied. When we study the proportion of a cohort who only obtain lower secondary education, the youngest age group considered are those aged 20-24.⁴ When studying the proportions with tertiary qualifications, the youngest age group studied are those aged 25-29.

For the European countries, Figure 1 shows the decrease of lower qualifications in the sequence of cohorts. The highest point of each vertical line in Figure 1 represents the proportion of low qualifications within the oldest cohort; the lowest point indicates the proportion within the youngest cohort. The decrease in the proportion of low qualifications is remarkable.

This is especially true for countries with a very high proportion of low qualifications in the oldest cohort, for example the South European countries, but also France, Belgium, Ireland and Finland. In all other countries, the proportion of low qualifications within the oldest cohort is significantly smaller, but for different reasons. Early on, Scandinavia promoted a high level of general education by introducing comprehensive schools. In Germany and its neighbouring countries (Austria, The Netherlands, and Denmark) the proportions of low qualifications are small, because in these countries vocational training systems have been long since established. In all these countries, (Scandinavia, Germany and its Germanic neighbours) the proportion of low qualifications decreases significantly less compared to those countries in which this proportion was originally high.

⁴ We will later see that only very few people obtain more education later in life if they have not passed the lower secondary level at age 20-24.

Figure 1. Share of persons having attained ISCED 0-2 by age group within the European Union: observed percentages



Source: EUROSTAT, Community Labour Force Surveys 1996-1997, own calculations

The smallest decrease is found in Germany and Denmark. In these two countries, less than a third of the oldest cohort considered has only minimum schooling. Portugal still has a relatively high proportion of persons with low qualifications; the same is true for Italy and Spain as well as for the United Kingdom and Luxembourg.

Based on the proportions of low qualifications, the differences among European countries are smaller for younger age groups than for older ones. For the older age groups, the difference between Germany and Denmark on the one hand and Spain and Portugal on the other hand is about 60 percent points. For the younger age groups, the maximum regional disparity within Europe is less than 40 percent points. If one ignores Portugal and Luxembourg, the difference is about 20 percentage points. In this international comparison, Germany's position is quite remarkable. The country is clearly top-ranked for the older age groups due to the well-established vocational training system. However, for younger age groups Germany shares this position with a whole set of other countries or, as for the cases of France and Belgium, other countries come close to this position.

It is interesting that in all countries with a relatively low level of low qualifications, almost no differences among younger age groups can be found. This might be due to the fact that countries, which already have achieved a high standard, did not make efforts to reduce the proportion of low qualifications any

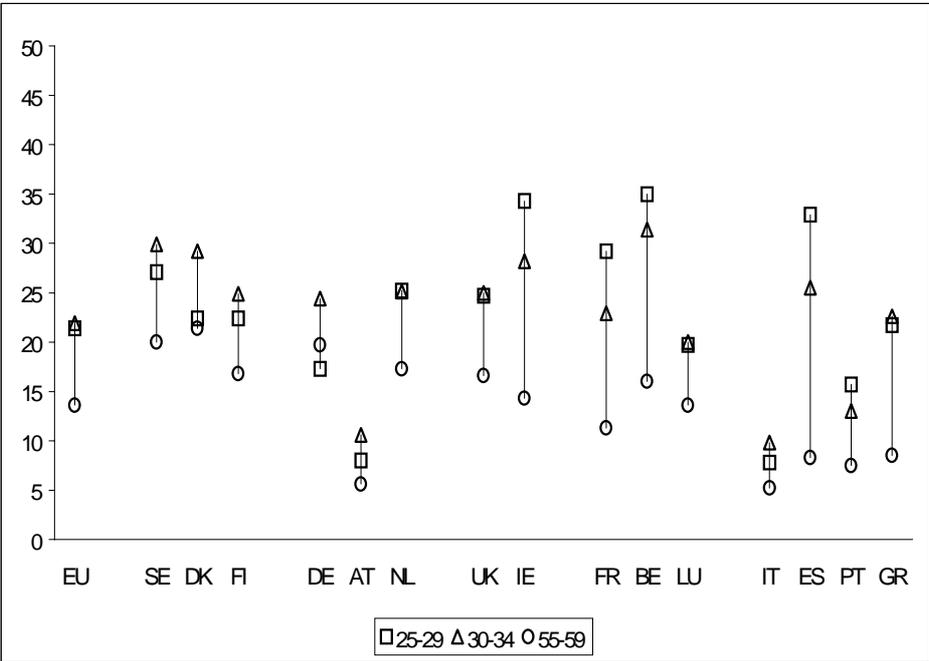
further. But it is also possible that it is particularly difficult to obtain better educational results for those pupils, who potentially remain on this level.

The findings of Figure 2 are more difficult to interpret. One reason for that is the variation in age at which students in different countries finish their tertiary education. If the proportion of highly qualified persons in a country is lower among the 24-29-year-old ones than the proportion among the 30-34-year-old ones, this does not mean that the proportion of graduating students really decreases. The literature reports that in these countries, students often finish their studies in their late thirties or early forties (European Commission, 1997: 90). In Figure 2, this applies to the Nordic countries, to Germany, Austria, The Netherlands, Italy, and – surprisingly - to the United Kingdom. The United Kingdom is well-known for its short duration of studies. However, the widespread system of Further Education (see above) leads to the fact that a substantial amount of persons obtain a tertiary qualification at a relatively late age.

The figure illustrates clearly that within the last thirty years, there were very different dynamics for the expansion of higher education in European countries. Ireland, France, Belgium, and Spain experienced an enormous increase in education. These formerly backward countries caught up on education according to our indicator and earned a position among the top-ranked countries. The top position of those countries is also connected to the fact that tertiary education is organised extensively (see for example the above-mentioned case of nurses). But the enormous educational growth in these countries cannot be denied, since for example in Germany, the training of nurses is included among the definition of tertiary education used here, too.

Overall, the disparity among the European countries increased over the period considered. In Austria and Italy, the oldest age groups already had a very low proportion of highly qualified persons. These countries witnessed a relatively small increase in tertiary education, while other countries experienced a massive growth of higher education. So the ratios of earned tertiary degrees diverge in Europe over the years. Germany again shows an exposed position in this figure. The proportion of highly qualified persons among 25-29-year-olds is even lower than that among 55-59-year-old persons. At first glance, this is implausible. However, this finding illustrates the late graduation of German students, but it also shows the fact, that Germany experienced a very moderate educational expansion compared to other European countries. The same phenomenon was also found by Lüttinger (1994) and is documented in findings of the OECD (1998). For the oldest birth cohorts considered, Germany is top-ranked together with Denmark and Sweden in Europe. For 30-34-year-old persons, Germany has a middle position, and for the youngest age group, its ranking position is even lower.

Figure 2. Share of persons having attained ISCED 5-7 by age group within the European Union: observed percentages

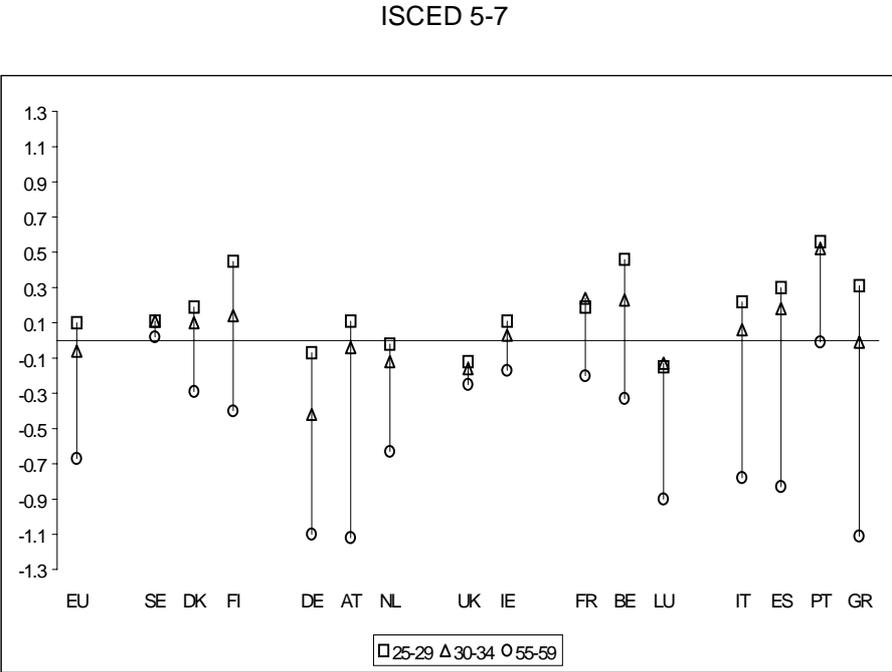
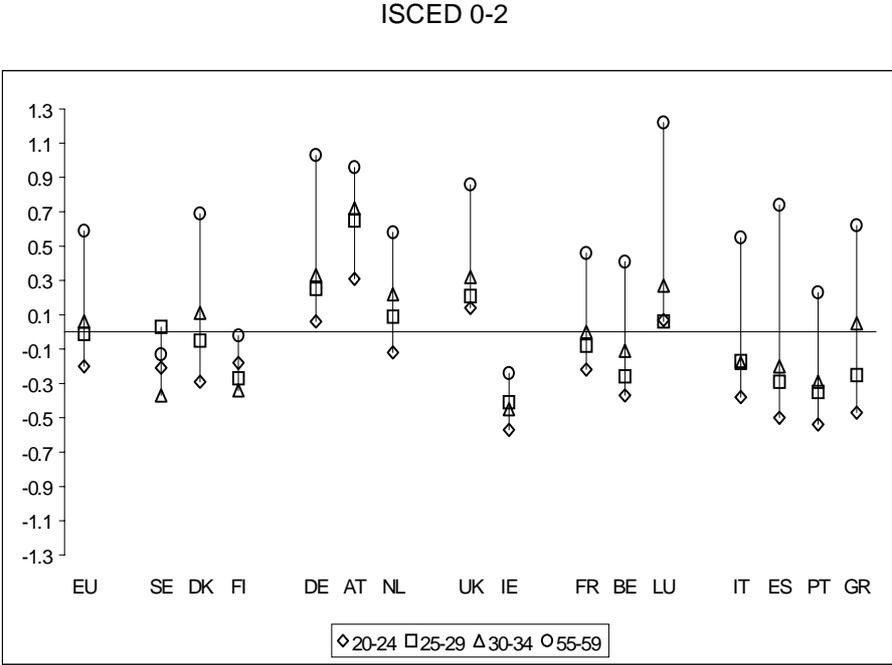


Source: EUROSTAT, Community Labour Force Surveys 1996-1997, own calculations

The previous analyses refer to all men and women of the respective age groups. However, if one is interested in cross-country variation of long term developments in educational attainment, there is a need to look at differences between men and women. The reason for it is that female educational participation rates have risen strongly in the last decades in Europe, and, therefore, will be responsible to a large degree for the educational expansion that is observed.

In Figure 3 observed logit effects are presented, that compare the educational attainment of women to men for different age groups. A positive logit effect indicates a disproportionate number of women in a given educational category, in the sense that the (natural logarithm of the) odds of having attained a particular level of education is higher for women than for men. A negative logit effect means that men have a higher probability of having attained this level of education.

Figure 3. Educational attainment of ISCED0-2 and ISCED5-7 for women compared to men by age group within the European Union: observed logit effects



Source: EUROSTAT, Community Labour Force Surveys 1996-1997, own calculations

With regard to lower level qualifications, in most of the European countries women were in a disadvantaged position in the older cohorts. Especially in Germany, Austria, the United Kingdom, and Luxembourg women had a higher probability than men of having attained ISCED0-2 at most. For

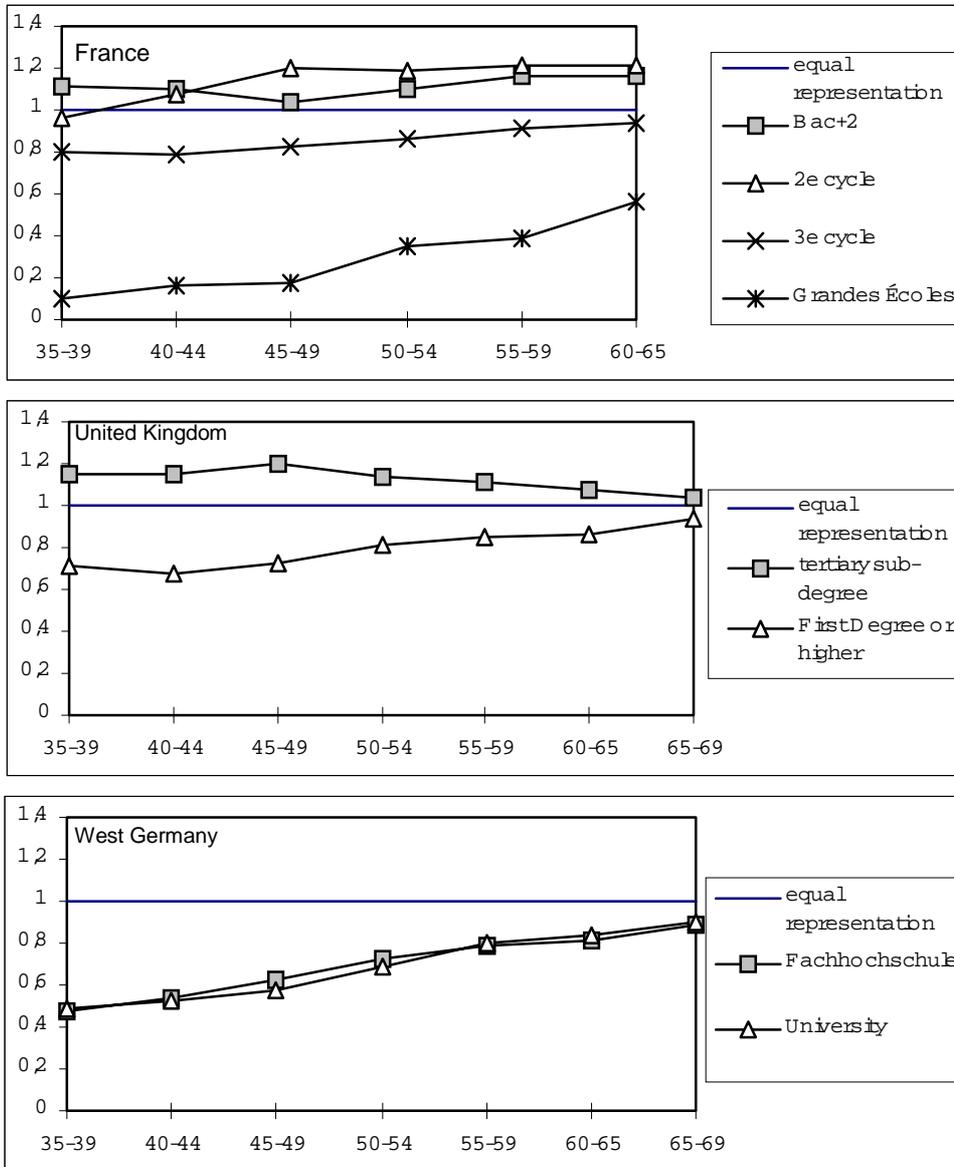
instance in Germany, the odds of having attained ISCED0-2 is 2.811 ($e^{1.034}$) times higher for women in the oldest age group (55-59 years) than for men in the same age group. Nowadays, sex differences in the attainment of ISCED0-2 have almost diminished in these countries; with the exception of the United Kingdom and Austria, where for women aged between 20 and 24 years, the odds of having attained ISCED0-2 is still higher for women than for men. In the South European countries women were in a somewhat disadvantaged position, but nowadays women have a lower probability of having attained only basic qualifications. The same holds for Belgium and France. In Sweden, Finland, and - somewhat surprisingly - Ireland, women were and still are in a better position than men with regard to the attainment of ISCED0-2.

With respect to higher education we conclude that in the meantime men and women hardly differ in the attainment of ISCED5-7 in most European countries. Only in the United Kingdom, Germany and Luxembourg are the odds of having obtained a degree in tertiary education still smaller for women than for men. In Portugal, Belgium and Finland, on the other hand, women nowadays have relatively better positions with regard to the probability of obtaining a degree in higher education. For example in Portugal, for female youngsters aged 25-29 years the odds of having attained ISCED5-7 is 1.746 ($e^{.557}$) times higher than the corresponding odds for 25-29 year old men. The other member states of the European Union hold more or less an intermediate position.

However, a more differentiated picture of the attainment of tertiary education shows a less favourable position for women. If one differentiates, as in Figure 4, the heterogeneous category of tertiary education graduates along more specific educational degrees, then inequality between genders is still clearly evident⁵. In England and France, women more often than men obtain those tertiary degrees which are less prestigious, less demanding and provide less advantageous opportunities on the labour market. Men, on the other hand, are over-represented among degrees at the top of the education hierarchy, even in more recent times. Germany is characterised by the fact that for both levels of tertiary qualifications the proportions of women are lower than those for men. Similarly differentiated analyses would probably also show continued gender inequalities on the tertiary level for other countries.

⁵ These more differentiated figures are calculated from the original national Labour Force Surveys which provide more detailed educational information than is contained in the harmonised EUROSTAT database. The figures are based on the year 1995 for Germany, 1994 for the UK and 1994 for France.

Figure 4. Proportion of women compared to proportion of men among graduates of different levels of tertiary qualifications by cohort



* Proportion of women among graduates from given level of qualification compared to proportion of all women among birth cohort considered

Source: Own calculations from microdata of national Labour Force Surveys of Germany (1993), France (1994) and United Kingdom (1994)

Age patterns of educational attainment in the European Union

Educational attainment is a step-wise process. As the members of a birth cohort move from childhood to adulthood they reach specific levels of education. Some quit the educational system while others continue and reach higher levels of education. Leavers may return to the educational system later in order to obtain additional qualifications. Some also combine education and work. The precise features of this complex process vary substantially from country to country. In this section we attempt to show how educational attainment of the members of a birth cohort evolves with age. For each successive age year we study how many members of a birth cohort have reached specific levels of education and how these distributions vary with increasing age.

We basically distinguish three levels of education: ISCED 0-2, ISCED 3 and ISCED 5-7. For ISCED 3 we additionally distinguish whether this level has been reached through a track of general education or through a track of vocational training. The following issues are of particular interest:

1. The size of the low qualification segment and the age profile of progressing beyond low qualifications. As we have seen countries vary in the proportions of birth cohort members who only obtain low levels of education. Here we are interested in the critical age up to which low qualifications are usually overcome either by a continued educational career, via obtaining additional qualifications by returning to school after a break or by combining education and work. Countries may vary substantially in the extent to which their educational institutions provide means and / or give incentives to progress beyond low qualifications in the life course.
2. The size and age profile of the intermediate (upper secondary) qualification group and the share of general and vocational qualifications among them.
3. The age profile of obtaining higher (tertiary) qualifications and the emerging size of this group.

Without longitudinal data and without the ability to follow the progression of individuals through the educational system it is very difficult to assess these issues properly. The European Labour Force survey allows a rough approximation by exploiting the fact that samples of the same birth cohorts are interviewed in successive years. We can therefore follow the changing educational profile of a birth cohort in the process in which its members continually grow in age. Below we will present first results from a model relying on this feature of the ECLFS. In this analysis below we will, however, not be able to distinguish between general and vocationally oriented secondary education⁶. Therefore we begin with an analysis of the simple educational distributions of the LFS respondents by their age. In this analysis the distinction between general and vocational qualifications can be used, but age effects and cohort effects are intertwined, and we must be particularly careful when interpreting the findings.⁷

We begin in Figure 5⁸ with the example of Germany, because we know and we have shown in the previous sections that in Germany educational participation has changed only very slowly in the most

⁶ The time series of repeated cross-sectional data that we will use below, unfortunately, does not include for all years the distinction between general and vocational secondary education.

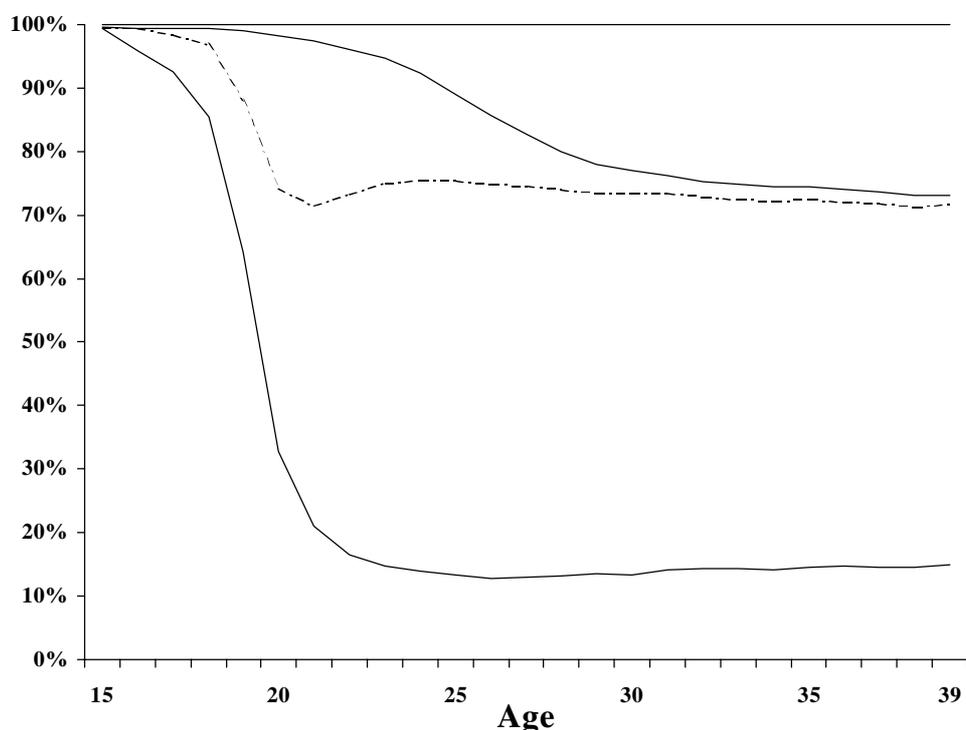
⁷ In order to obtain stable estimates for single age years we present figures for the pooled ECLFS-surveys of the years 1992 to 1996.

⁸ Figure 5 includes two vertical lines at age 18 and at age 25. These lines are included to facilitate comparisons of the age pattern in educational attainment between the figures for different countries.

recent years. Therefore the age distributions are only weakly biased by cohort changes in this country. The lowest (data-related) curve in Figure 5 shows that at age 15 in Germany 100 % of a birth cohort still hold qualifications below the upper secondary level. From age 16 and 17 onwards more and more persons obtain upper secondary qualifications. Up to age 17 this proportion rises slowly, then very quickly up to about age 22. Beyond age 22 only very few succeed in obtaining qualifications which move them from at most lower secondary to upper secondary qualifications. The second *unbroken* line marks the distinction between (upper) secondary and tertiary qualifications. We see that from about age 20 on a few people slowly obtain tertiary qualifications. This proportion increases more quickly in the mid twenties. But even in their thirties some cross the line from secondary to tertiary qualifications. At age 39 slightly more than a quarter of a cohort has obtained a tertiary qualification. The *broken* line indicates the distinction between *vocationally* and *generally* oriented secondary qualifications. In Germany, the overwhelming majority of a cohort obtains a vocationally oriented secondary degree and this qualifications remains the final qualification for most of those who obtain it. In contrast, most of those who have obtained a generally oriented secondary degree - generally at about age 19-20 - sooner or later continue to tertiary studies and then obtain a tertiary degree at an university or Fachhochschule. The horizontal direction of the broken line and the strongly declining proportion of those with general secondary qualifications clearly indicate that in Germany the type of secondary education - vocational or general - very strongly conditions the further life-course: Most of those with a traditional academically oriented general secondary education move to tertiary education, those with vocational training at the secondary level do not.⁹

⁹ Evidently this is a simplified account. We only see aggregate distributions in the figure and cannot follow individual trajectories. But as available longitudinal data indicate, the representation here is not far from the truth. However, a few of those with vocational secondary qualifications later obtain tertiary qualifications. This is indicated in the figure by the slightly declining direction of the broken line after age 23. The slight increase in the broken line after age 21 most likely reflects the fact that a small proportion of those with a general secondary degree add a vocational qualification to it.

Figure 5. Germany: Distribution of the educational attainment groups by age



Source: EUROSTAT, Community Labour Force Surveys 1996-1997

The very horizontal pattern of the lines beyond about age 22 (for secondary) and about age 30 (for tertiary qualifications) is due to two facts. First, quite a few people certainly take part in some courses in order to improve their knowledge, to gain additional qualifications or to renew qualifications. However, this kind of further education or of life long learning is not of a kind that would lead to a reassignment in terms of our broad classification of qualifications. Secondly, as outlined before, educational participation has changed only rather slowly in the last 10 to 15 years. Therefore, the distribution in terms of our classification has remained more or less constant as well. We should expect a rather different pattern in countries, in which educational participation has strongly increased in recent years. For instance, when in younger cohorts a smaller fraction of people remains with ISCED0-2 qualifications than in older cohorts, then the respective curve should reach a minimum at about age 20 or so. After that age the curve should move upwards, reflecting the fact that in the older cohorts more persons have obtained only low level qualifications. Similarly, when in recent cohorts the proportions of tertiary level graduates have increased, the ISCED5-7 line should move upwards following a minimum at about age 25. The declining space for ISCED5-7 qualifications would indicate that in the cohorts of the older age groups the proportion of those with tertiary qualifications was smaller than in the more recent cohorts¹⁰.

¹⁰ For a first attempt to distinguish more precisely such cohort effects of changing educational participation from the age pattern of educational achievement, see the next section.

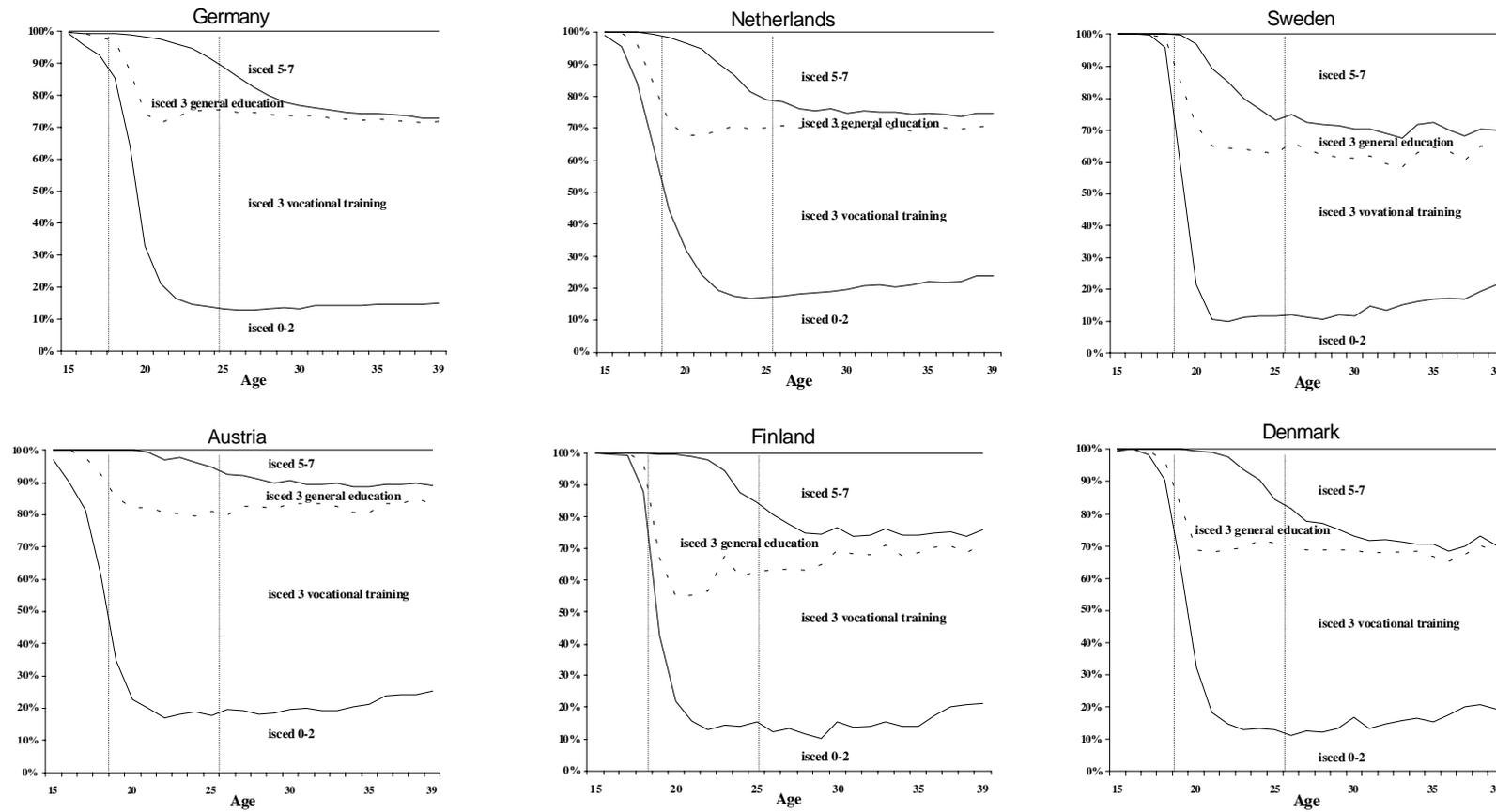
We now move from the example of Germany to the other European countries which partly show rather different patterns in age profiles of educational attainment, in the distribution of achieved educational qualifications and in change over time in these patterns. We begin with those countries which are most similar to the German pattern. These are the Scandinavian countries plus Austria and the Netherlands (see Figure 6). In all these countries rather small proportions of the population - clearly less than 20 % in the youngest cohorts - receive only lower level secondary qualifications. All these countries have a large segment of secondary vocational qualifications, but only small minorities remain with secondary general qualifications. With the exception of Austria, in all these countries quite large proportions of a cohort reach a tertiary degree (between 25 and 30%.) In the Netherlands and in the Scandinavian countries, secondary and tertiary degrees tend to be reached somewhat earlier than in Germany. In Austria, *secondary* degrees are also reached somewhat earlier than in Germany, but the few *tertiary* degrees are reached even later than in Germany. According to these figures, there is thus a large communality between the German speaking countries, the Netherlands and Scandinavia. All these countries have a large sector of vocational training at the secondary level; they have also rather high proportions of tertiary education (except Austria), but rather low proportions of people with only low qualifications.

The second group of countries includes the United Kingdom and Ireland, France and Belgium (see Figure 7). With the exception of the UK, similarly large proportions in the youngest cohorts obtain tertiary qualifications as in the previous group of countries, but the vocational element at the secondary level is clearly smaller than in the Germanic and Scandinavian countries. However, in both France and the United Kingdom, vocational qualifications are still quite frequent, but the respective proportion is very small in Belgium. The Irish labour force survey does not measure vocational qualifications, but from other sources we know that such qualifications are quite rare in Ireland. For all these countries we see the clear sign of marked educational expansion in recent years: For the older age groups we find substantially larger proportions of persons with only lower level secondary qualifications than in the younger age groups. The UK has progressed the least in this direction. Even in the youngest cohorts about a third of the cohort will go through life with the low qualifications at the ISCED0-2 level. In all countries of the second group both secondary and tertiary qualifications tend to be obtained at younger ages than in the Germanic and Scandinavian countries. ISCED5-7 qualifications are obtained particularly early in Belgium and Ireland. It is quite likely that in many cases these are qualifications below the university level.¹¹

The third group of countries includes the countries of Southern Europe: Greece, Italy, Portugal and Spain (see Figure 8). With the exception of Greece, all these countries still include large proportions of the population with low qualifications even if these proportions have declined recently. According to the figures, the countries also seem to have in common a relative lack of vocational qualifications at the secondary level. However, the data for Italy are inconsistent with other research on secondary education in Italy, according to which more young people obtain a degree of upper secondary education in *vocational* and *technical* schools rather than in the *academically* oriented Licei (Giovine 1988: 247). Secondary qualifications are obtained at relatively young ages in Spain and Greece (like in France) , but at late ages (like in Germany) in Italy and unexpectedly also in Portugal. As to tertiary qualifications, the countries vary a lot. Spain has progressed very quickly recently. The share of

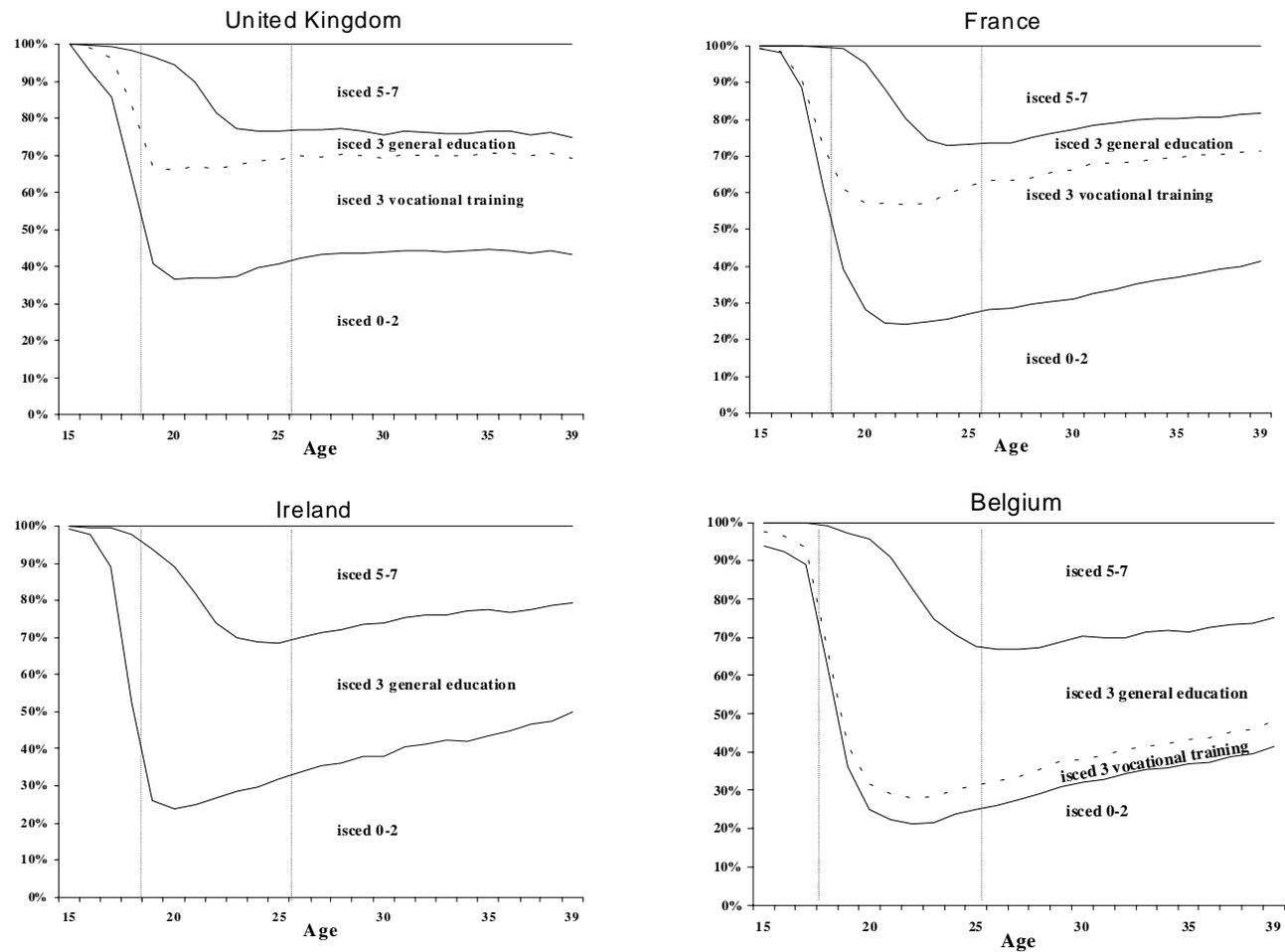
¹¹. To answer this question one would need more information on the specific nature of the degrees earned which unfortunately is not available in the Labour Force Surveys at a sufficient comparative standard.

Figure 6. Distribution of the educational attainment groups by age



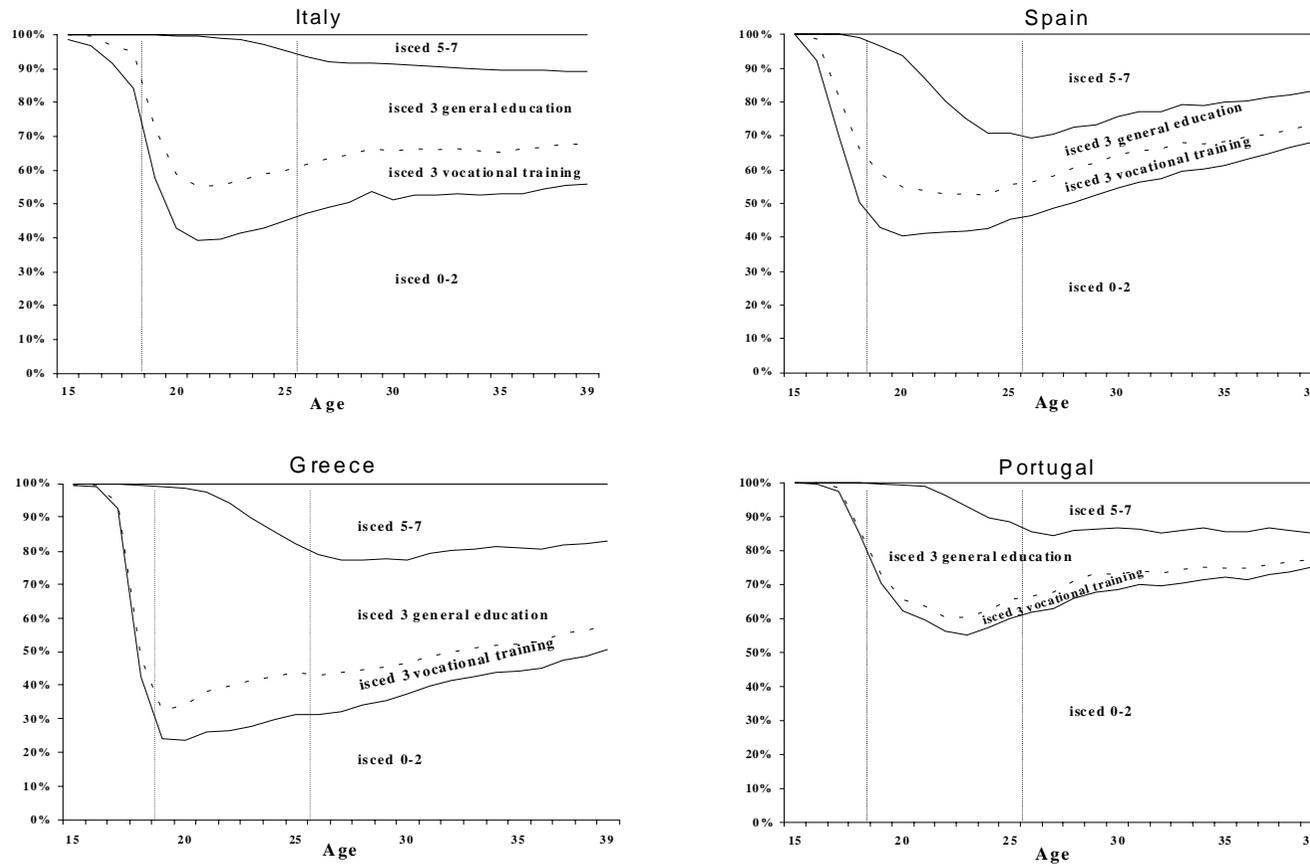
Source: EUROSTAT, Community Labour Force Surveys 1996-1997

Figure 7. Distribution of the educational attainment groups by age



Source: EUROSTAT, Community Labour Force Surveys 1996-1997

Figure 8. Distribution of the educational attainment groups by age



Source: EUROSTAT, Community Labour Force Surveys 1996-1997

tertiary qualifications and the timing of reaching them are rather similar to France. In Greece, the proportions of tertiary graduates have also increased considerably, but students reach tertiary degrees there almost as late in life as in Germany. Italy, surprisingly is the other extreme in Southern Europe. Even though the proportion of general secondary qualifications is quite large, very few successfully obtain tertiary degrees, and those who do, obtain them quite late. (Proportions and timing of obtaining tertiary degrees in Italy is quite similar to the pattern in Austria).¹²

A summary of the previous findings concerning the process of educational attainment during youth and early adulthood in the European countries is contained in Figure 9. It shows the distribution by educational levels attained of people aged 21-25 in the various countries of Europe. At that age, the formation and size of two groups of people is already more or less fixed: those who will move through life with a low level of qualifications and those with secondary level vocational qualifications. The previous figures let us conclude that the size of these two groups will probably only change to a small extent once a cohort has reached age 25.¹³ From this snapshot at ages 21 to 25 we see:

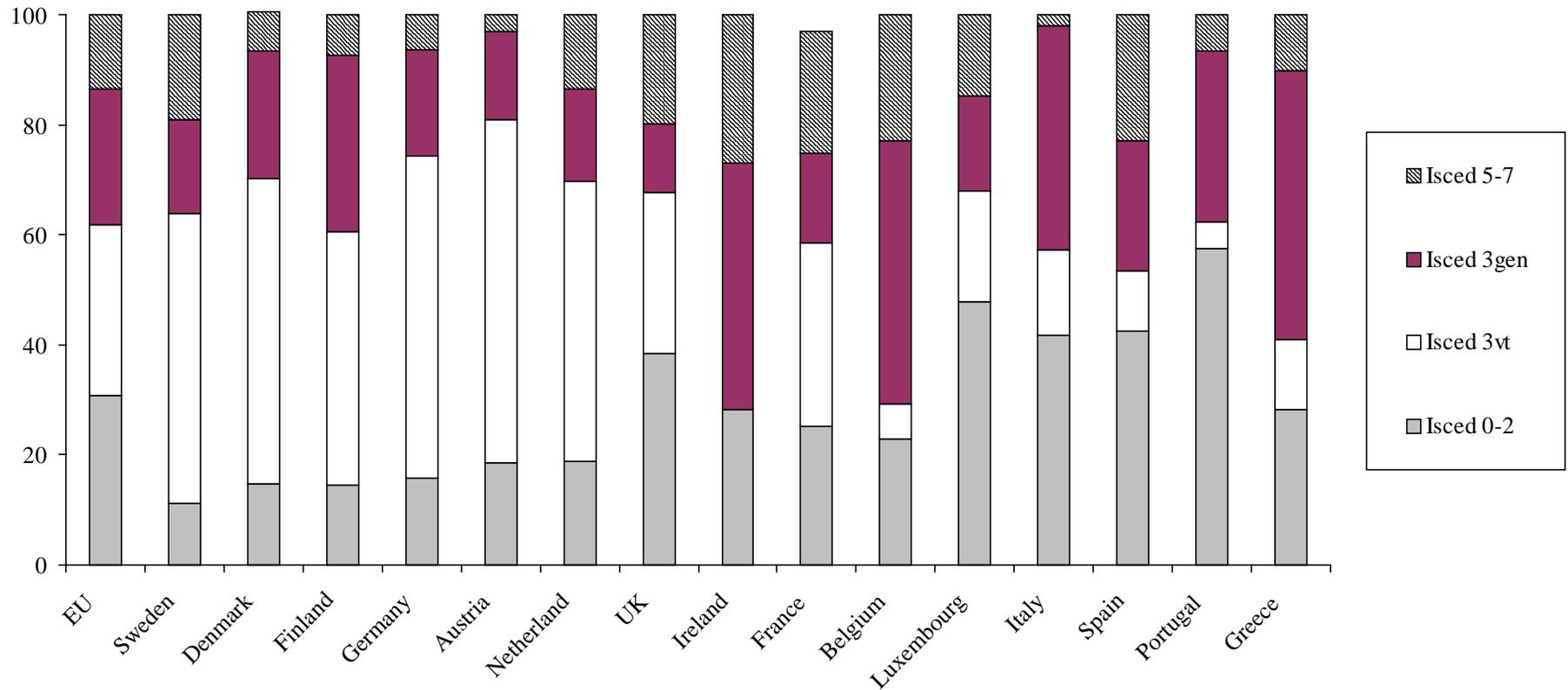
- The Scandinavian countries, Germany, Austria and the Netherlands have so far succeeded best in providing the largest share of their citizens with qualifications beyond the lower secondary level. In these countries, the proportion of people with only ISCED 0-2 qualifications is smallest. These are at the same time the countries with the largest share of vocationally oriented qualifications at the secondary level.
- Next come Belgium, France, Ireland and the UK. Of these countries the UK and France have relatively large proportions of vocational qualifications, the other two much less.
- With the likely exception of Italy, the countries of Southern Europe have also scarcely developed the provision of formal vocational qualifications. Also the proportion of people with only low qualifications is still rather high, only Greece being an exception.

As other data – not shown here – indicate, in most countries men are slightly more likely than women to have participated in a secondary vocational programme, women more often in a general programme.

¹² According to the figures of the ECLFS tertiary qualifications appear to be obtained quite late in Portugal as well. However, as other information on Portugal does not confirm this finding, further investigation is needed for clarification.

¹³ The more or less final cohort proportions of those who move through life with at most general secondary qualifications or with tertiary qualifications become more or less fixed only at higher ages. They can therefore not be estimated reliably from Figure 9. The figure can only indicate in which countries tertiary qualifications are obtained at rather young ages.

Figure 9. Differences in educational attainment for persons between 21 and 25 by countries



Source: EUROSTAT, Community Labour Force Surveys 1996-1997

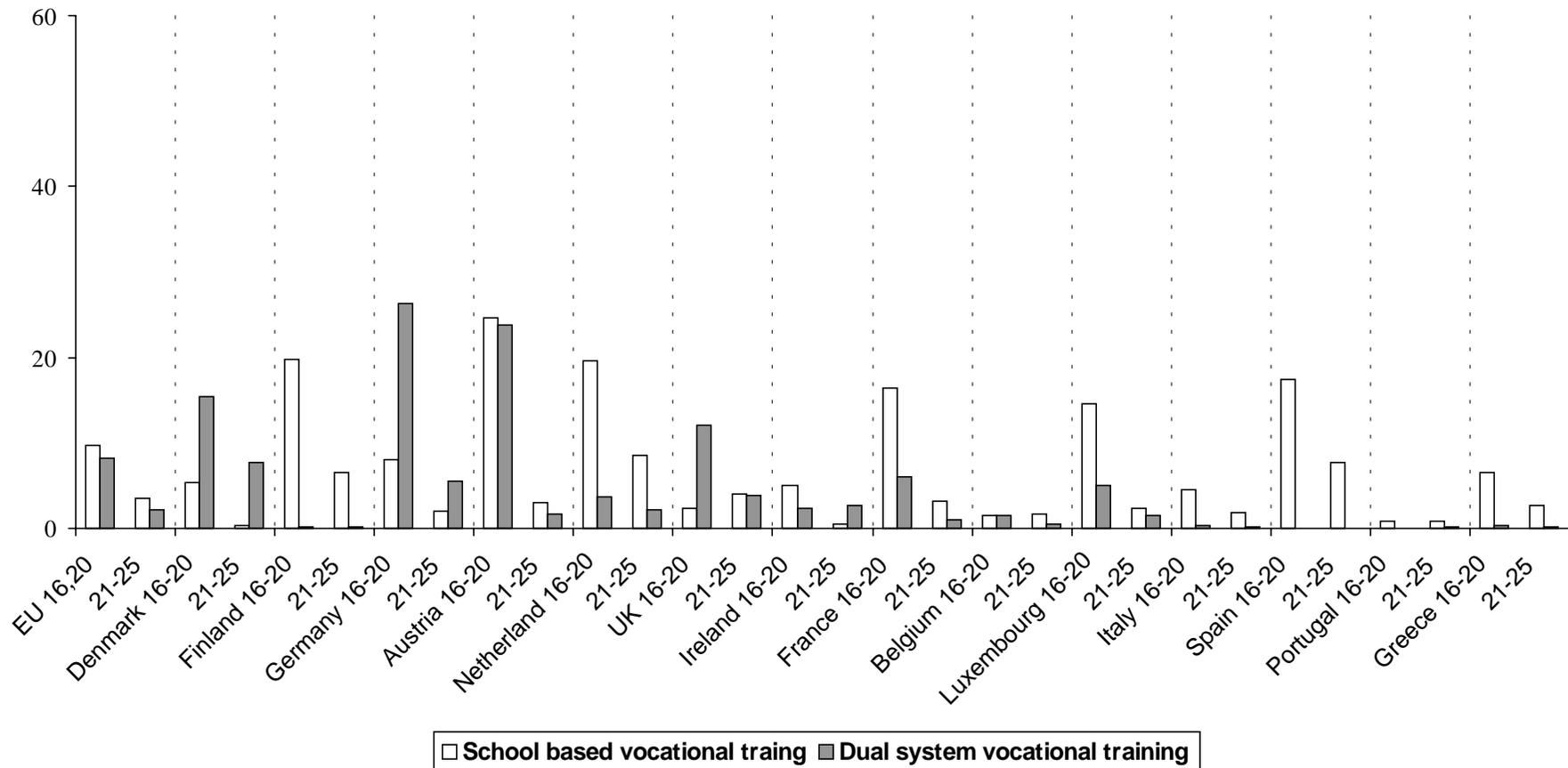
The systems of vocational training in Europe not only vary strongly in size, they also vary considerably in the organizational set-up and in the extent to which training in schools is combined or alternates with training within a firm's workplace. The labour force survey allows to grasp the relative prevalence of either kind of vocational training by analysing the information collected with the question concerning educational activity during the last four weeks preceding the survey. The response alternatives include school based vocational training and dual system vocational training. Figure 10 shows the proportion of people having obtained one of these two forms of vocational training for the age groups 16-20 and 21-25 – the two age groups in which most of such training takes place.¹⁴

The results are largely consistent with those previously reported. In the age group 16-20 the participation rates in vocational training (adding school based and dual system type vocational training) is largest in Austria, Germany, the Netherlands and the Scandinavian countries, next come France and the UK. However, rather unexpectedly, we also find about 20 % of the 16-20 years old participating in vocational training in Spain. This seems in contradiction to the previous figures according to which in Spain only small proportions of all age groups have obtained a vocationally oriented secondary education. While this inconsistency - and also the case of Ireland - needs to be clarified, all other countries are found to have only very low participation rates in either form of vocational training between 16 and 20 years of age. The figures are also largely consistent with available knowledge of the institutional organisation of vocational training in the various countries. They show large proportions of dual system vocational training in Austria, Germany and Denmark, but unexpectedly also for the UK. In all other countries school based vocational training prevails.

Summing up: Even though the brief analysis so far did not attempt to disentangle age differences in educational attainment from cohort trends we have found both commonalities and substantial differences between the European countries in the profiles of educational participation. One of the common features seems to be, that young adults who have followed a vocationally oriented track in secondary education are much less likely to enter tertiary level education than graduates from general tracks. The patterns of results also appear to indicate that in all countries very few persons make the step from a ISCED0-2 qualification to a full secondary qualification once age 20 or 21 is reached. Countries differ quite substantially in three respects: (i) the proportion of a cohort who remains at the lower level of secondary education; (ii) the shares of the general and vocational tracks at the upper secondary level; (iii) the time in the life course of obtaining tertiary level qualifications.

¹⁴ Other analyses not reported here show, that in older age groups the LFS finds only very tiny proportions of vocational training for all countries.

Figure 10. Vocational training within the last four weeks for age cohorts by countries



Source: EUROSTAT, Community Labour Force Surveys 1996-199

A model to separate age effects and cohort effects in educational attainment

As has been made clear, a serious weakness of the previous analysis is the fact that they do not disentangle age and cohort effects (see for example Mason et al, 1973). This is most clearly evident from the contra-intuitive finding, that in some countries the proportions of people with only lower level secondary education is higher for people at higher ages than at younger ages. In order to obtain a more realistic account of the 'educational paths' of successive birth cohorts in the European Union we develop now a model to separate age and cohort effects.

One way of doing this is to make use of repeated cross-sectional data. For the purpose of this analysis therefore, we use cross-sectional data based on a ten-year-period (1988-1997). In order to look at the educational attainment process of young people, we selected only those respondents who were between 15 and 34 years of age at the time of interview. By defining a birth cohort on the basis of a person's birth year, we can observe this cohort in each period in which a survey has taken place. Since the age of the individuals who are part of this birth cohort is higher in later periods, we can determine the educational level of the members of this birth cohort at different age points. For instance, we observe youngsters who were born in 1971 when they were 17 years of age (interviewed in 1988) until the age of 26 (interviewed in 1997). By doing this exercise for all birth cohorts, we can observe for each of these cohorts a (different) part of their educational career. By combining this information, we get a clear picture of the age specific educational attainment for successive birth cohorts. We categorised the yearly birth cohorts in the following five-year-span groups: 1953-1957, 1958-1962, 1963-1967, 1968-1972, and 1973-1977.

A broad view on the European Union

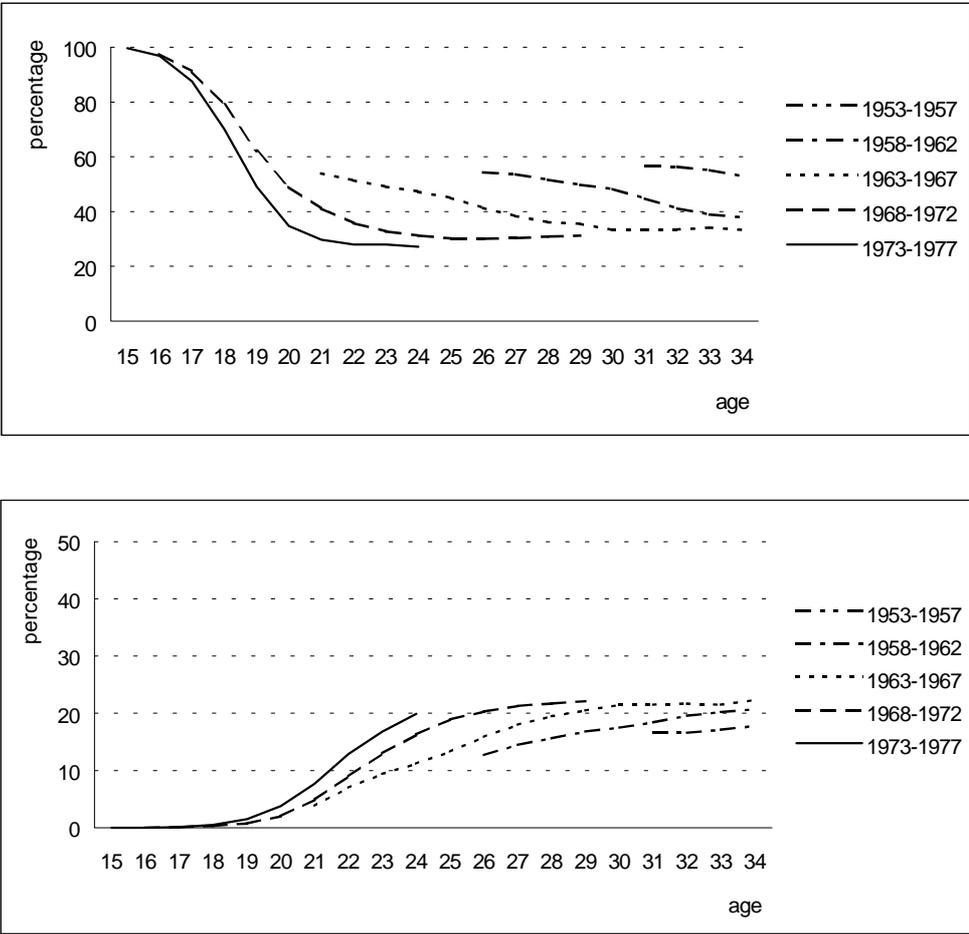
Figure 11 presents the observed age specific patterns of educational attainment for successive birth cohorts in the European Union. Let us start with a general description of the age specific patterns of educational attainment, before looking at time trends. As can be seen from this Figure, with no exception all young people of age 15 have still attained no more than primary education or secondary education, lower level (ISCED0-2). Immediately after this age point, however, a strong decline starts. Of course, this is the result of people graduating from secondary education, higher level. Once persons are in their early twenties, then the likelihood of obtaining any higher qualification than ISCED0-2 at a later age is almost zero. After this age point nobody exits basic education anymore by receiving a higher level diploma.

In general, the age at which students have finished (at least some) tertiary education (ISCED5-7) starts around 20 years of age. Between age 22 and 25 most of the youngsters that are in tertiary education obtain a diploma at this level. From all people in the European Union aged 25, around 15 to

20 percent (depending on the birth cohort) have attained tertiary education. After that age, the additional proportion of people that reach the ISCED5-7 level declines. After 30 years of age, almost no increase in the proportion of people that attain tertiary education can be observed.

When comparing the age patterns for the various birth cohorts, it can be concluded again that a strong educational expansion has taken place in recent decades. At each age point, the proportion of people who have a diploma at the level of ISCED0-2 at most has decreased over time, while the percentage of students who have graduated from ISCED5-7 has increased over time.

Figure 11. Age specific educational attainment of ISCED0-2 and ISCED5-7 by birth cohort within the European Union: observed percentages



Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculations

Modelling age and cohort effects

All the information that is in Figure 11 can be dealt with more parsimoniously if one models both the age and cohort effects. Therefore, we applied logit analysis to the data. The model shows for each educational level the age and cohort effects that refer to all men and women. In order to specify adequately the age specific patterns, the age effect is modelled by a polynomial function. We included a linear, a quadratic and a cubic term in the regression equation. The cohort effects are based on dummy variables, where the birth cohort 1973-1977 serves as the reference category. In Table 1 the parameter estimates of this logit analysis are shown. The findings in Table 1 show again that there has been a strong educational expansion during the last decades. First of all, the attainment of lower qualifications has decreased in the sequence of birth cohorts. For instance, the odds of having attained ISCED0-2 is for the 1953-1957 birth cohort more than eight times higher than for the 1973-1977 birth cohort ($e^{2.119} = 8.323$). Furthermore, it can be concluded that tertiary education has expanded in recent times. For persons born in the period 1953-1957, the odds of having attained ISCED5-7 is only 34 percent of that for those born between 1973 and 1977 ($e^{-1.083} = .339$). The modelled age effects as presented in Table 1 are difficult to interpret on the basis of the parameter estimates. For now, we will skip the interpretation of these effects, and come back to it when we compare the results for the European countries separately (see Figure 15).

Table 1. The impact of age and birth cohort on educational attainment of ISCED0-2 and ISCED5-7 within the European Union: predicted logit effects

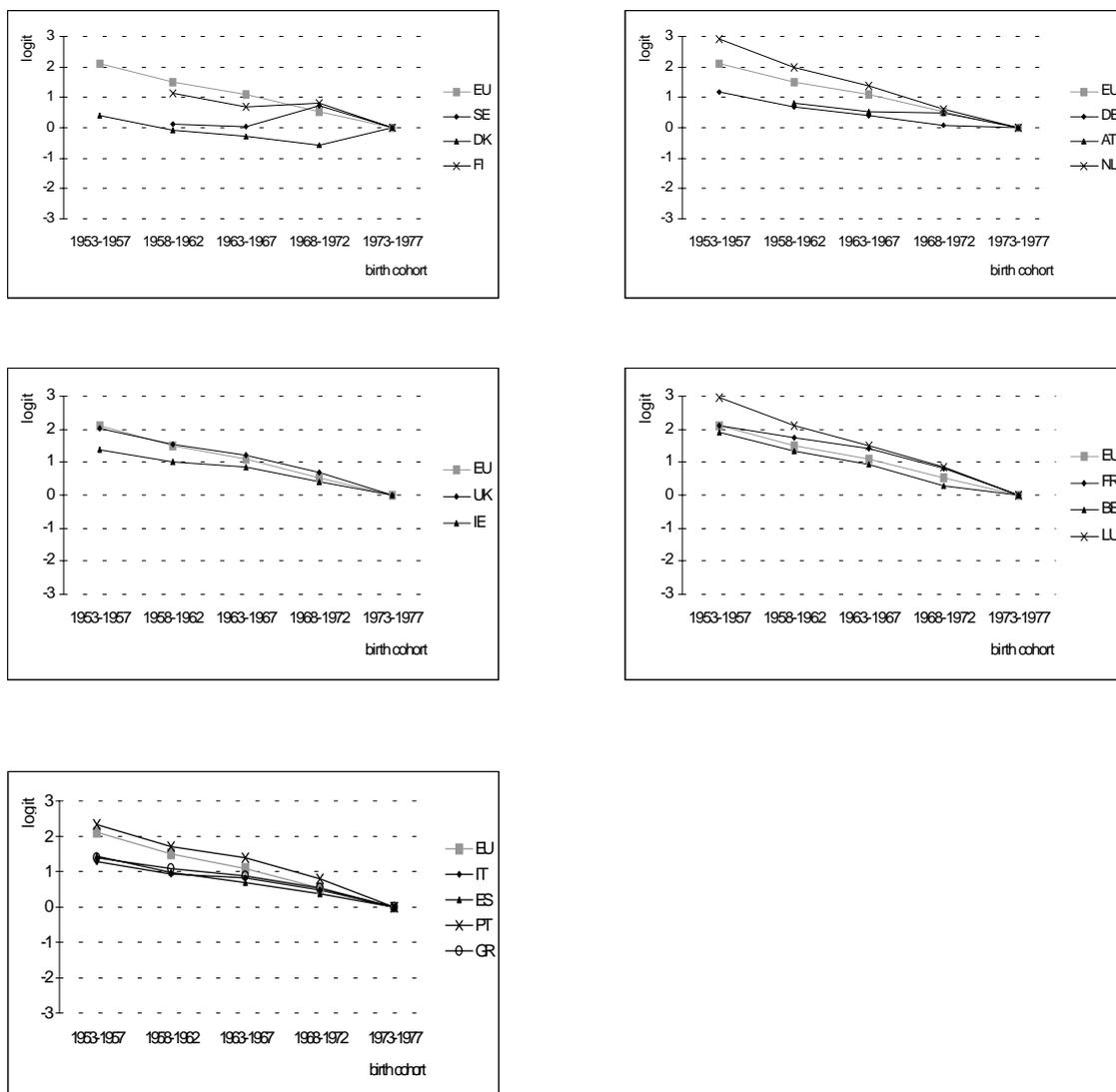
Variable	ISCED0-2	ISCED5-7
Intercept	49.523	-62.086
Age	-5.443	6.040
Age ²	.193	-.198
Age ³	-.002	.002
Birth cohort		
- 1953-1957	2.119	-1.083
- 1958-1962	1.498	-.910
- 1963-1967	1.077	-.730
- 1968-1972	.537	-.448
- 1973-1977	ref.	ref.

Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculations

Cross-country variation

So far, we have presented only a very broad picture of age specific patterns of educational attainment in the European Union and neglected all the variation there is between the member states. The reason for this is that we just wanted to show how we can treat the data we have at our disposal. Now, we will repeat our analysis, but then for each country separately. This will give us more useful insights into the differentiation of the age specific patterns of educational attainment in Europe. The estimates of this analysis are shown in Tables A.1 and A.2 of the Appendix. For ease of presentation, the results will be interpreted with the help of Figures.

Figure 12. Historical trends in educational attainment of ISCED0-2 within the European Union: predicted logit effects

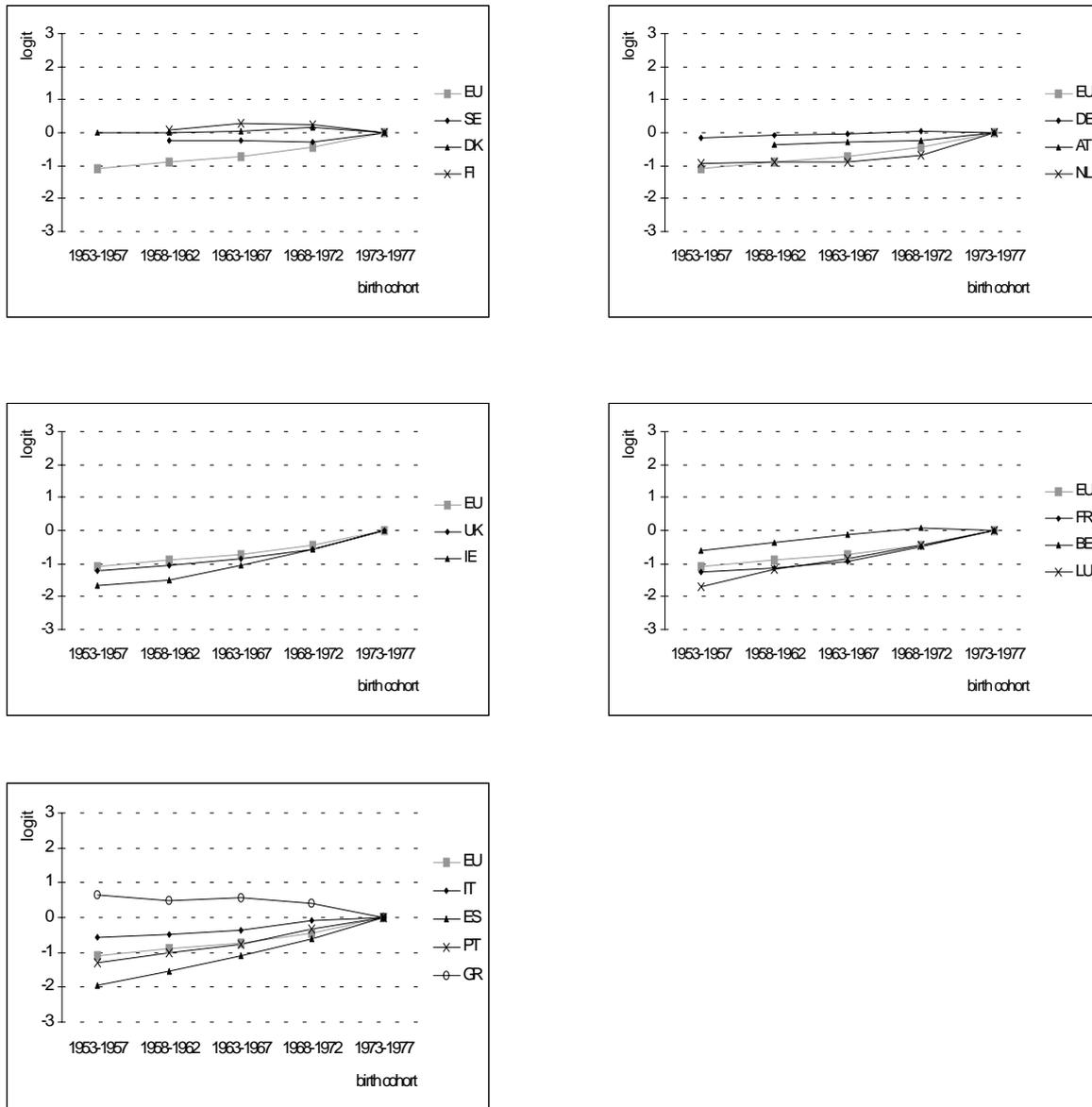


Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculations

In figure 12, the historical development in the educational attainment of ISCED0-2 is shown. In this figure the presented results are based on logit effects. As a kind of reference we plotted in each graph the logit effects of the European Union as a whole. For the Scandinavian countries it is difficult to say what happened with the attainment of lower qualifications over time. It seems that there is a kind of a trendless fluctuation. At least one could say that, compared to the European Union, the development in the attainment of ISCED0-2 is rather small. In the German surrounding countries more changes have taken place in the attainment of lower qualifications. For Germany and Austria, the effect over time is twice as small as for the whole European Union, whereas for the Netherlands the decreasing educational attainment of ISCED0-2 has been much stronger. In Luxembourg, the attainment of ISCED0-2 has fallen strongly as well. The United Kingdom, Belgium, France and Portugal seem to approach the European Union at most. In these countries, for the oldest birth cohort (1953-1957) the logit of having attained ISCED0-2 is two times higher than for the most recent birth cohort (1973-1977). In the other Anglo-Saxon country, Ireland, the decrease of ISCED0-2 is smaller. The same is true for the South European countries Italy, Spain, and Greece.

In Figure 13 the educational attainment of tertiary education is considered. The Figure shows that the expansion of higher education has developed very differently between the countries within the European Union. Once again, in Sweden, Denmark, and Finland the tertiary education system has hardly expanded recently, although these countries have a top-rank position in the percentage of people who have attained higher education. It seems that the expansion of the educational system in these countries has taken place in earlier times, that remain beyond the scope of our data. In Germany and Austria the expansion of higher education is moderate as well. As hypothesised, a possible explanation of this finding is that both countries have an extensive vocational training system in secondary education, which reduces the need and pressure to provide a vocationally oriented system in tertiary education. This occurred in many other European countries, where tertiary education is organised more broadly (once again, think of the case of nurses). Spain and Ireland, on the other hand, have experienced an enormous expansion of tertiary education. In the case of Spain, it might be that students extend their educational career and postpone their entry in the labour market, because of bad labour market prospects (high unemployment rates). In the case of Ireland, the explanation might have something to do with the non-existence of vocational training in secondary education. All other member countries show an increase in the educational attainment of ISCED5-7 that is more or less of the same size; maybe with the exception of Greece, where there is hardly any change or even a slight negative trend.

Figure 13. Historical trends in educational attainment of ISCED5-7 within the European Union: predicted logit effects



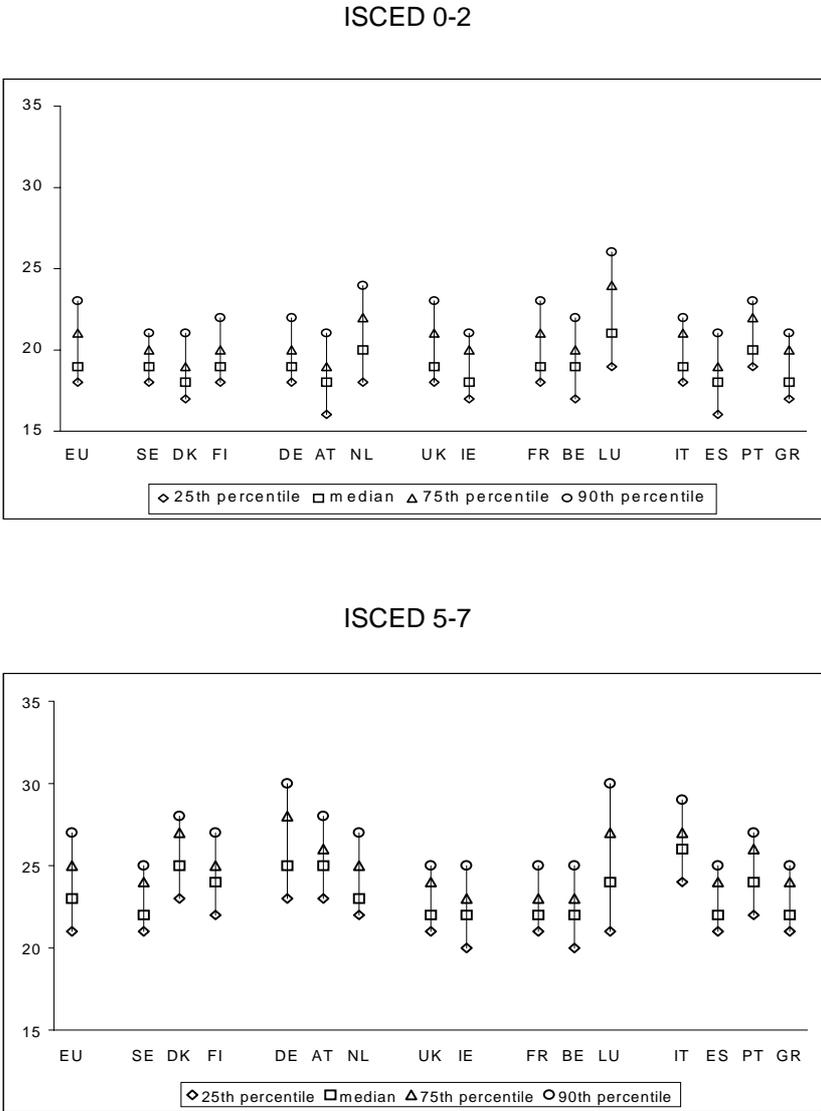
Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculations

Age distribution of educational attainment

Before coming to the end of this paper, we discuss the age effects in more detail. Since we modelled the age specific patterns of educational attainment by a polynomial function, the interpretation of the logit effects is rather complicated. Therefore, we first re-transformed the estimated logit effects into probabilities. Subsequently, we defined the age at which the percentage of persons having attained a

certain level of education does not change anymore. We decided that starting from 15 years of age until the age of no more change, the range in between both ages is the age-span where the attainment of this level of education takes place. Then, we computed four percentile points in this age distribution (25th percentile, median, 75th percentile and 90th percentile). For the ISCED0-2 level, the age distribution shows until what age young people leave basic education or, in other words, receive any diploma at a higher level of education. The age distribution of the ISCED5-7 level determines the age at which students typically obtain their degree in higher education. By computing the age distribution of the attainment of both levels of education, we get a clear picture of cross-country variation with regard to the ages at which youngsters attain a certain level of education.

Figure 14. Age distribution of educational attainment of ISCED0-2 and ISCED5-7 for the 1963-1967 birth cohort within the European Union: predicted ages



Source: Eurostat, Community Labour Force Surveys 1988-1997, own calculations

Figure 14 shows that there is a considerable variation in the age at which youngsters normally leave basic education (ISCED0-2). We see that in the European Union as a whole young people normally obtain any higher level of education than the basic level at the age of 19. The Scandinavian countries follow the European standard, with the exception of Denmark. In this country the median age at which young people exit ISCED0-2 is 18 years of age. The same is true for Austria, whereas in Germany and in the Netherlands youngsters normally obtain their certificate in higher secondary education one or two years later respectively.

A possible explanation might be that in Austria a larger proportion of youngsters follows short programmes in secondary education, higher level, which implies that they exit basic education earlier. Unfortunately, due to the broadly defined ISCED levels that we need to use, this explanation can not be tested. Furthermore, we see for the Netherlands that after the age of 24 still 10 percent of the Dutch population achieve a higher level of education than ISCED0-2. The relatively extensive supply of adult education in the Netherlands might be relevant in this respect. In the United Kingdom, the median of leaving ISCED0-2 by receiving a diploma at a higher level of education is reached at 19 years of age and the 90th percentile at 23 years of age. In Ireland, the median age at which young people leave basic education is 18 years. Moreover, there is a relatively small variation in the age distribution. The reason for it is that the Irish educational system just offers general programmes in secondary education, that give access to higher education, usually starting at the age of 17 or 18. In France, the age at which young people normally exit basic education follows the average European pattern. In Belgium, the age at which youngsters normally leave the basic level of education is somewhat lower. In Luxembourg, on the other hand, young people leave basic education by attaining secondary education, higher level at a very late age. In this country the 90th percentile point is reached at the age of 26 only, whereas the European average is 23 years of age. Of the South European countries, Spain and Greece are somewhat below the European level with regard to the age at which young people exit ISCED0-2, whereas Italy and Portugal are more or less at the European average.

With regard to the age specific attainment of tertiary education, there is much more variation between the member states of the European Union. The median age at which students obtain their degree in higher education is 23 years in the European Union as a whole. In Sweden, the median is reached at an age of 22 already. In Finland the median age is reached at the age of 24, whereas in Denmark this is at age 25. With respect to the age at which tertiary education is attained, the latter country fits more closely to the German situation. In this country (and in Austria, and to a lesser extent in the Netherlands as well), students obtain their degree in tertiary education at a relatively late age. Moreover, in Germany there is a lot of variation in the age at which the tertiary level is attained. The first German students leave the tertiary system in their early twenties, while the last obtain their degree when they have reached the age of 30 or more. The reverse situation is found in the Anglo-Saxon speaking countries of Europe. In both the United Kingdom and Ireland students reach their degree in higher education in their early twenties. Furthermore, there is a small age variation. Only a few persons reach the ISCED5-7 level after the age of 25 years. In France and Belgium, the age

distribution of the attainment of tertiary education is more or less the same. Students obtain their diploma rather early and there is hardly any age variation. In Luxembourg, only the first year of university studies can be taken. Afterwards, students have to continue their studies abroad. If one examines the Luxembourgian age pattern, one might draw the conclusion that a large part of the students from this country continue their study in Germany. After all, the age distribution for Luxembourg looks like the one for Germany: the median age is rather high and there is a lot of age variation. Italy has the highest median age. Only at the age of 26 years do students in Italy normally obtain their degree in higher education. The reason for this extremely high age has something to do with large number of students that still attending higher education beyond the nominal duration of their courses due to failure to fulfil examination requirements (Schizzerotto and Cobalti, 1998). In Portugal, the attainment of tertiary education is at a rather late age as well, and resembles the Danish age pattern. Finally, Greece and Spain follow the average situation in the European Union with regard to the age specific pattern of having attained tertiary education.

Conclusions

In order to understand the differences in the integration process of young people in the labour market between countries of the European Union, it is necessary to know how the institutional structures of educational systems in these countries differ, as well as how the educational attainment varies. The purpose of this paper was to provide this basic, but important, information. It gives an overview of the institutional features and reforms of the various educational systems in the European Union and provides a broad map of the landscape of educational participation and its recent changes in the process of educational expansion.

In all countries technological, economic and social development in modern societies has led to an increased demand for a (working) population with higher skills and qualifications. This rising demand for higher qualifications motivated educational expansion and the educational reforms related to it. However, countries differ in the way they dealt with this increased educational participation. It was argued that in countries where extensive systems of vocational education existed (like in Germany), these systems have absorbed a substantial part of the growing demand for education. In other countries, it was expected that they would extend opportunities for vocational training within their school system (like France and some of the Scandinavian countries), or that they would expand their existing systems of general education programmes (like Ireland). In the latter case, i.e. in countries that decided to expand secondary level (mainly general) qualifications, it was hypothesised that the demand for education at the tertiary level would grow faster than in other countries.

The detailed description of the process of educational participation showed, that by and large the educational participation expanded most in those countries (like Spain and Ireland) with originally the lowest qualified population. In other words: the formerly backward countries caught up on educational participation and in some cases they now even have a position among the top-ranked countries. Even

though in a few countries (in most of the Southern European countries, but also in the United Kingdom) proportions up to one third of young people with low qualifications can still be found, the differences between countries in the incidence of low qualifications have declined. Conversely, we found growing divergence between countries in participation rates at the tertiary level. In some countries participation rates have grown very quickly, while the lag of other countries like Italy or Austria has increased. The disparity between countries in participation rates at the tertiary level would probably appear to be even larger if we were able to measure with more precision the various kinds of tertiary qualifications.

Gender differences with regard to educational attainment have gradually diminished and a significant part of the educational expansion can be ascribed to the strongly increased educational participation of women. However, the extent of gender equality or of even an advantaged position of women is probably overestimated when using only broad measures of tertiary qualifications. More detailed analyses for selected countries have shown that even in the youngest cohorts men still hold a larger share of the highest and most advantageous tertiary qualifications while women obtain a larger proportion of the lower, less rewarding and less prestigious tertiary degrees.

There are country differences in the age at which youngsters attain a certain level of education as well. On average, youngsters leave the basic level of education by receiving any diploma at a higher educational level at the age of 19. However, there are some countries that have opportunities to exit basic education at a somewhat later age (for instance in the Netherlands). Especially, arrangements such as adult education offer older people a 'second chance' to increase their highest level of education attained so far. With regard to the graduation ages in tertiary education there is much more variation between the member states. In the European Union as a whole, students normally obtain their degree in higher education at the age of 23. However, there are countries like Ireland, where the typical graduation age is relatively low, whereas in Germany, for example, tertiary degrees are obtained at a rather late age.

Most likely the largest differences between the EU member states exist in terms of the organisation and curricular differentiation of secondary education, in particular with respect to the relative share of general and vocational qualifications and the mix of such qualifications offered on the educational market. Unfortunately, the ECLFS data only allow a very broad mapping of these differences between European countries and some of the results even appear inconsistent with research from other national data bases. Nevertheless the data seem to lend support to one interesting observation when combining the results on the vocational / general distinction at the secondary level of education and those on the recent expansion in participation rates at the tertiary level. In countries with a large share of vocational qualifications on the secondary level (Germany, Austria, The Netherlands, the Scandinavian countries and – when measured correctly – Italy) participation rates at the tertiary level clearly increased less than in the countries in which vocationally oriented training is less developed.

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Appendix

Table A.1. The impact of age and birth cohort on the attainment of ISCED0-2: predicted logit effects

	EU	SE	DK	FI	DE	AT	NL	UK	IE	FR	BE	LU	IT	ES	PT	GR
Intercept	49.523	100.719	80.289	77.525	72.778	39.606	55.404	42.650	59.999	47.929	54.477	31.963	58.581	41.419	56.664	62.697
Age	-5.443	-11.046	-8.982	-8.505	-7.927	-4.385	-6.009	-4.711	-6.911	-5.218	-6.140	-3.354	-6.534	-4.753	-6.125	-7.132
Age ²	.193	.387	.324	.298	.278	.153	.208	.169	.256	.180	.222	.116	.237	.176	.218	.260
Age ³	-.002	-.004	-.004	-.003	-.003	-.002	-.002	-.002	-.003	-.002	-.003	-.001	-.003	-.002	-.003	-.003
Birth cohort																
- 1953-1957	2.119	x	.408	x	1.181	x	2.934	2.038	1.384	2.112	1.897	2.973	1.284	1.434	2.331	1.394
- 1958-1962	1.498	.111	-.089	1.141	.682	.808	1.990	1.542	1.005	1.732	1.358	2.096	.935	.968	1.714	1.082
- 1963-1967	1.077	.059	-.295	.707	.391	.525	1.388	1.236	.841	1.400	.939	1.519	.818	.685	1.395	.871
- 1968-1972	.537	.726	-.575	.793	.068	.476	.607	.695	.420	.794	.298	.865	.479	.379	.793	.534
- 1973-1977	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.

ref. reference category; x no observations

Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculations

Table A.2. The impact of age and birth cohort on the attainment of ISCED5-7: predicted logit effects

	EU	SE	DK	FI	DE	AT	NL	UK	IE	FR	BE	LU	IT	ES	PT	GR
Intercept	-62.086	-70.045	-74.335	-101.829	-37.408	-78.673	-69.689	-65.442	-63.957	-79.798	-67.792	-27.547	-95.587	-84.340	-87.788	-64.455
Age	6.040	6.918	6.828	8.160	3.015	7.290	6.686	6.588	6.560	8.160	6.841	2.381	8.801	8.598	8.475	6.197
Age ²	-.198	-.228	-.212	-.277	-.833	-.231	-.214	-.222	-.224	-.277	-.232	-.071	-.277	-.291	-.277	-.202
Age ³	.002	.003	.002	.003	.001	.002	.002	.003	.003	.003	.003	.001	.003	.003	.003	.002
Birth cohort																
- 1953-1957	-1.083	x	-.015	x	-.167	x	-.940	-1.233	-1.653	-1.268	-.619	-1.694	-.554	-1.931	-1.281	.667
- 1958-1962	-.910	-.238	.004	.084	-.096	-.353	-.890	-1.049	-1.505	-1.138	-.376	-1.175	-.493	-1.541	-.999	.471
- 1963-1967	-.730	-.225	.046	.271	-.029	-.287	-.899	-.834	-1.074	-.923	-.116	-.855	-.369	-1.097	-.751	.550
- 1968-1972	-.448	-.293	.178	.250	.025	-.225	-.694	-.568	-.559	-.482	.092	-.430	-.074	-.604	-.305	.407
- 1973-1977	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.

ref. reference category; x no observations

Source: EUROSTAT, Community Labour Force Surveys 1988-1997, own calculation