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THE ROLE OF NATIONAL QUALIFICATIONS SYSTEMS IN PROMOTING LIFELONG LEARNING

Towards an Understanding of the Mechanisms that Link Qualifications and Lifelong Learning

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INTRODUCTORY NOTE

This paper, prepared by Friederike Behringer and Mike Coles, was commissioned by the Education and Training Policy Division in support for the Education Committee's activity on *The Role of National Qualifications Systems in Promoting Lifelong Learning* for its 2001-2002 Programme of Work. This activity is designed to investigate how national qualifications systems influence the patterns and quality of lifelong learning (LLL) in OECD countries. The overall objective is to provide policy makers with a good knowledge base to assist them in shaping the qualifications systems to promote lifelong learning. This paper proposes indicators that can be used to describe qualifications systems and the outcomes of lifelong learning. It explores possible mechanisms that link the two sets of indicators and how they might be examined empirically. In discussing these issues, the paper demonstrates the complexity of the field.

ABSTRACT

The aim of the OECD activity *The Role of National Qualifications Systems in Promoting Lifelong Learning* is to investigate how qualifications systems influence the volume, distribution and quality of lifelong learning. This paper takes forward thinking about the ways in which qualifications systems can influence participation in lifelong learning (LLL) and the quality of learning experiences. A set of 11 components and some 60 subcomponents of qualifications systems is proposed and delineated and LLL is described by a set of 18 indicators. If there are relationships between qualifications systems and lifelong learning that are not just spurious correlations, then there will be mechanisms by which this happens. These mechanisms are the kernel of this activity and a set of 11 are proposed together with a description of their possible effects on individuals, providers and employers. Mechanisms might also be termed 'drivers' of LLL and each one may act on different stakeholders in different ways and operate differently in changing social, economic and cultural conditions. Thus the complexity of the field of enquiry is recognised. The paper attempts to refine the conceptualisation of mechanisms that work through the aspirations of individuals, the planning process of providers and the needs of employers. The paper also outlines some tentative ideas for empirical analysis of the interactions that are at the heart of the activity.

RÉSUMÉ

Le but de l'activité de l'OCDE sur *Le rôle des systèmes nationaux de certification pour promouvoir l'apprentissage tout au long de la vie* est d'étudier l'influence qu'ont les systèmes de certification sur le volume, la répartition et la qualité de l'apprentissage à vie. Avec cette activité, l'OCDE espère aider les pays à promouvoir l'apprentissage tout au long de la vie pour tous en mettant en avant les instruments utilisés au sein des systèmes de certification. Cet article va au-delà en termes de manières par lesquelles la certification peut influencer la participation à l'apprentissage tout au long de la vie et la qualité des expériences d'apprentissage. Un ensemble de 11 composantes et d'environ 60 sous composantes des systèmes de certification est proposé et défini. Un ensemble de 18 indicateurs est aussi proposé pour caractériser l'apprentissage tout au long de la vie. Si il y a une relation entre les systèmes de certification et l'apprentissage à vie qui ne soit pas une corrélation artificielle, alors il doit exister des mécanismes par lesquels cette relation survient. Ils sont au centre de cette activité et un ensemble de 11 mécanismes est proposé ainsi qu'une description de leurs effets potentiels sur les individus, les fournisseurs et les employeurs. Ces mécanismes peuvent aussi être des « moteurs » de l'apprentissage tout au long de la vie et chacun d'entre eux peut agir sur différentes parties prenantes de différentes manières et opérer différemment selon le contexte social, économique ou culturel. La complexité de ce domaine de recherche est donc reconnue. Cet article tente ainsi d'affiner la conceptualisation des mécanismes à l'œuvre au travers des aspirations des individus, le comportement des fournisseurs et les besoins des employeurs. Il met aussi en avant quelques idées pour analyser les interactions qui sont au cœur de l'activité.

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TOWARDS AN UNDERSTANDING OF THE MECHANISMS THAT LINK QUALIFICATIONS AND LIFELONG LEARNING

1. Introduction

Objectives and structure of the paper

This paper aims to summarise and take forward thinking about Qualifications Systems (QS) and the ways in which QS influence participation in lifelong learning (LLL) and the quality of learning experiences. It draws on papers and discussions which have informed the OECD activity *The role of National Qualifications Systems in promoting Lifelong Learning*. The paper goes further and attempts to clarify the potential links between qualifications systems and lifelong learning and to identify the main mechanisms by which QS and LLL could interact, and elucidate the ways these mechanisms work. A further aim of the paper is to show how the empirical work for the OECD activity might be developed. Countries, other international organisations and experts are invited for discussion.

Section 2 of the paper presents a systematic way of describing QS, this is followed by Section 3 which considers appropriate indicators of LLL. The paper then moves on to consider the mechanisms that link QS and LLL (Section 4). This section summarises briefly theoretical explanations of participation in LLL, outlines the general model of analysis of the impact on QS on LLL and tries to identify the mechanisms or drivers by which the features of the QS influence participation and distribution of LLL. The paper concludes with a suggestion for empirical analysis (Section 5) that might indicate which of these mechanisms are important and which ones might be used for improving participation in lifelong learning.

Background: The OECD activity

The OECD activity *The Role of National Qualifications Systems in Promoting Lifelong Learning* was launched by the OECD Education Committee and endorsed by the OECD Employment, Labour and Social Affairs Committee at their Autumn 2000 meetings. In Spring 2001, representatives of 22 countries, plus representatives of five other international organisations, met to discuss the purpose and scope of the activity. The OECD Secretariat prepared guidelines for the Country Background Reports, which were discussed in another meeting of country and international organisations representatives, taking place in Spring 2002. At the time of writing, 23 countries have expressed their continued interest in the activity. These countries are: Australia, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Portugal, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. Co-operation with the European Union, CEDEFOP, the European Training Foundation, the International Labour Office and the World Bank contributes to the activity.

The aim of the activity is to investigate how qualifications systems (QS) influence the volume, distribution and quality of lifelong learning (LLL). From a policy point of view the aim of OECD is to help countries promote lifelong learning for all; thus the activity tries to shed light on policy instruments within QS that can promote LLL.

Definitions

For the purpose of this activity it has been proposed that qualifications should be defined as a unit of recognised outcome of learning. There is a wide variety of types of qualifications: certificates, diplomas, degrees and licenses. QS have been defined for the purpose of the activity as:

- the arrangements for the recognition of learning (processes, requirements, provision); and
- the arrangements that link different qualifications and qualifications and destinations (qualifications, entry rules, credit systems, qualifications pathways and progression routes, and qualifications and standards frameworks).

The activity has a focus upon those qualifications that are recognised by key stakeholders, social/economic partners, professional bodies and sectoral organisations.

The OECD has adopted a 'cradle-to-grave' concept of lifelong learning, that is all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competencies within a personal, civic, social and/or employment-related perspective. Thus the whole spectrum of learning, formal, non-formal and informal is covered in this broad definition, as are active citizenship, personal fulfilment, social inclusion, professional/vocational and employment related aspects.

2. Describing qualifications systems

In order to generate a common framework based on country reports we have developed a model of a framework for the description of QS, based on 11 components and 63 sub-components[1]. The full preliminary list is attached to this paper (List A in the Annex), its short version is:

- Scope of application of the QS
- Control of the QS
- Accreditation processes for qualifications
- A Framework within the QS
- Descriptors present in qualifications
- Access to qualifications for individuals
- Progression for individuals
- Stability of the QS
- Awarding processes
- Credit system
- International reference points

[1] A bibliography of sources used to develop this model of a possible framework is included at the end of the paper.

There are two possible developments to the description in the light of background reports: accommodating possible omissions that are important to some countries and reconsidering the clustering of components. It may also be necessary to refine the model for the purposes of facilitating further empirical analysis.

3. Indicators of lifelong learning

The indicators of LLL are key output variables in this activity and it is important to pay attention to developing as comprehensive a list of LLL indicators as possible. Many countries and international organisations have developed potentially useful indicators for LLL. A list of 18 indicators has been developed, for most of them data are currently available for most of the countries involved in the activity. The indicators cover performance (skills, competencies and attitudes), access and participation, and resources for LLL. The list of indicators is attached as list B in the Annex. A wider set of indicators has been identified from published sources. This wider set includes 'process' elements of LLL such as *level of use of ICT* and *use of mechanisms for recognising informal learning*. These additional indicators may prove useful once the initial analysis based on the more output oriented indicators in List B in the Annex have been carried out.

In some studies it is suggested that a composite indicator of LLL can be developed for each country by combining through the use of an algorithm various individual indicators. For the moment this approach has been rejected. The relationships between QS and LLL are complex and little understood – evidence for effects of one on the other are not available in literature. The effects may not be visible at the composite level and it might incorrectly be concluded that there are no clear effects. In time it might be possible to offer suggestions for 'effects' at composite level by considering the interaction of these more specific effects if they exist.

4. Links between qualifications systems and lifelong learning

Decisions about lifelong learning

Lifelong learning is an activity carried out by individuals, therefore the motivation, propensity and capacity of individuals to take up further learning as influenced by the QS is the core of the analysis. The concept of lifelong learning is of special importance for adults, but the learners include school children, students, working and non-working adults. In addition, impacts of the QS on providers and employers have to be taken into account. They are important actors in the field of LLL, are influenced by the QS and exert influence on LLL. Providers encompass schools, colleges, employers, learning centres etc. Employers (of any size and sector) provide a relevant share of the work related training and education of adolescents and adults, and being gatekeepers they can stimulate, enable or block access to learning.

The existing body of theory to explain participation in LLL often takes the individual as a starting point. Economic approaches (human capital theory) as well as sociological approaches (rational choice theory) share the assumption of the individuals deciding about the amount and timing of education and training on a rational basis. There are differences in the treatment of preferences and restrictions, in the scope of possible benefits the individual takes into account, in the modelling of the decision process and in the concept of rationality (maximising returns, sequential decision making). The main difference is with the assumptions about aims or preferences of individuals. On the side of the economic approaches there is a tendency to treat them as stable, equal for all individuals and mainly based on money. Sociologists place emphasis on different and changing preferences; the theory needs "bridge assumptions" (on preferences, aims, expectations and restrictions at individual level) to gain substance and to deliver testable predictions.[2]

[2] Some references can be found in the bibliography at the end of the paper.

Generally speaking, in taking decisions individuals try to optimise the benefits. They do not have complete information, for decisions about participation in education information and guidance therefore is regarded as crucial. Benefits can be entirely personalised non-pecuniary rewards through to highly instrumental utility considerations. However, in a first stage the focus has to be on utilitarian considerations. Relevant to the decisions individuals make is the subjective perception of alternatives, restrictions and possible benefits, subject to individual values and possible distortions. It is subjective expectations that influence the decisions of individuals. This means that their perception of possible benefits connected to the award of the qualification is a decisive factor, and this is influenced by their anticipation of the chances of success and the risk of failure. Again, this is unevenly distributed across population groups.

Participation in LLL is partially compulsory, e.g. attendance at schools up to a certain age, or in special courses for unemployed persons in order to be entitled to unemployment benefits. Under these conditions the avoidance of detriments constitutes at least part of the benefits of participation.

Lifelong learning involves public and private cost. When making decisions about their participation individuals take into account their - monetary and non-pecuniary – private costs, including opportunity costs. For adults loss of earnings and entitlements (including tax deductions) determine opportunity cost, in the case of discontinuation of employment this can be the main factor. Costs differ not only for different areas of lifelong learning, but also between population groups.

Considerations of subjective expected net benefits of acquiring (additional) qualifications are regarded as the main driving force for individuals, taking into account possible benefits and cost of participation and the anticipated chances of success. This implies that any hypothesis on the influences of the QS on LLL is actually a chain of hypotheses with an intermediate unobserved term, the subjective expected net benefits.

For the purpose of the analysis it is suggested to analyse the impacts of QS on cost of LLL in the sense of time and money invested and the impacts on expected benefits, with a focus on utilitarian considerations.

The effect of QS on providers is assumed to work through the cost of provision, content and structure of supply. The cost effects are likely to be more pronounced with private providers, and it has to be considered whether they are effective at all with public providers. Employers decide on the investment in training for their staff on the basis of expected utility, being determined by the need for competencies (signalled by qualifications), the cost of the investment, and the benefits (e.g. in terms of enhanced productivity and estimated length of returns on investment). The cost of investment is not only influenced by the cost of the provision of training, but also by the loss of working time whilst training and the possibility of having to increase wages either by trade union agreement or by offering retention allowances.

The analysis of the impact of qualifications systems on lifelong learning

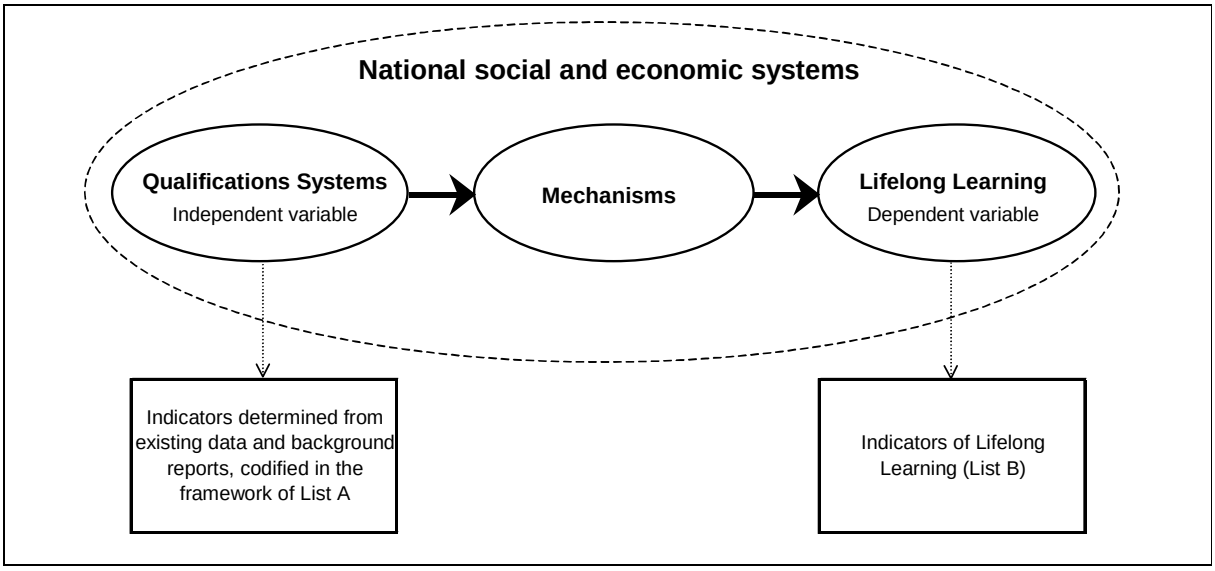
In consideration of the probable expectations of participating countries – an understanding of how LLL can be enhanced through changes to the QS - the analysis treats the QS as the causal or independent factor and LLL as dependent. The framework for the stylised description of QS (List A in the Annex) will be used as independent variables and a set of indicators of LLL (List B in the Annex) will be treated as dependent variables.

If there are relationships between QS and LLL that are not just spurious correlations, then there will be means by which these happen – a mechanism of some sort. These mechanisms are the kernel of this activity. The goal is to identify what each mechanism is, how it transforms a feature of QS into greater participation in learning. Mechanisms might also be termed ‘drivers’ of LLL and they may act in different ways on individuals, providers and employers. They may also operate in different ways in different social,

economic and cultural conditions. Hence the importance of giving full consideration to these contextual conditions (see below). The mechanisms or drivers are elaborated later in this paper. By means of these drivers components of QS will influence the subjective evaluation of net benefits of taking up learning and hence participation in and distribution of LLL.

Context effects have to be taken into account. The condition of the labour market with its demands regarding volume and structure of work translates into job opportunities and the necessity to acquire further qualifications. Innovation and new technologies require skill development. Institutional regulations also account for demand for qualifications, e.g. the prerequisite to undertake vocational training in order to be entitled to unemployment benefits. The degree of compression of the wage structure and the general rate of labour turnover influence the possible returns of training to employers. Together with basic cultural values they influence expected cost and benefits; these effects will differ between various groups of the population in a country and between countries. These are important and have to be incorporated in the model at a later stage. In the short term it is proposed to pay particular attention to the ways background reports describe the contextual conditions that are important in countries. The following diagram shows the general structure of the model.

Figure 1



The mechanisms

The derivation of potential mechanisms that link QS with LLL is a critical step in this research. It is important to have a common understanding of the concept of a mechanism. At this stage a mechanism is conceptualised as a process that translates a feature of QS into outcomes on LLL. According to this conceptualisation if there is a mechanism working, a change in a component of QS leads to a change in the quantity, quality or distribution of LLL. At the same time countries with different "parameter values" of the components should have different LLL outcomes, other things equal. The table that follows is a list of components or features of QS with the main potential mechanism. The (+) sign indicates that the component of QS is considered to be linked positively with the mechanism, a (–) sign means a negative effect. In some cases the direction of the effect is not clear, sometimes positive and negative effects might be acting at the same time, indicated with a question mark (?). The table is regarded as a basis for discussion; there might be some more mechanisms working, and there might be contradictory views on the kind of the relationship between QS and the selected mechanism.

Table 1

Components of QS which might have influence on LLL	**Potential mechanisms by which they will operate on LLL**
1. Scope of application of the QS	
• Broad	+ Portability + Signalling + Size of market + Availability in given region - Learning towards qualifications not included in the QS
• Sector/industry specific	+ Acceptance + Transparency/Signalling - Portability across sectors/industries
• Collective agreements/agreements by professional bodies	+ Acceptance + Transparency/Signalling
• Legal status	+ Acceptance
2. Control of the QS	
• Clear	+ Acceptance + Transparency
• Stability	+ Reliability ? Flexibility of qualifications
• Regional/national/extra-national	? Portability
• Awarding body	?„value“ of the qualification
3. Accreditation processes for qualifications	? Cost for individuals and providers + Portability ? Flexibility of the QS + Control of the market for education + Quality of continuing education + Transparency + Acceptance + Reliability

Table 1 (continued)

4. A Framework within the QS • Horizontal and vertical relationships --- • Equivalencies general/vocational qualifications (horizontal linkages) --- • Inclusiveness of QS	 ? Accessibility ? Effects on benefits + Transparency --- + Accessibility + Signalling --- ? Effects on qualifications outside the framework ? transparency
5. Descriptors present in qualifications --- • Areas of learning	+ Transparency + Signalling + Pathways --- ? Content appeal
6. Access to qualifications for individuals • Qualifications as entry requirements --- • Assessment/Recognition of prior Learning	 - Accessibility ? Amount of investment (time/cost) ? Cost of assessment --- ? Motivation if recognition of prior learning - Cost of LLL through recognition of prior learning
7. Progression routes for individuals --- • Multiple entry points	?Accessibility + Specification of entry requirements --- + Licensing + Accessibility - Cost
8. Period of validity of qualifications • Stability of the QS	 - Flexibility according to qualification demands - Cost of provision of courses + Acceptance + Transparency + Signalling
9. Awarding processes	? Cost of assessment (including non-pecuniary for individuals) ? Accessibility
10. Credit system	 + Flexibility of learning periods + Flexibility of content + Partial certification + Cost of granting credit
11. International reference points	+ Portability + Acceptance ? Signalling

Thus we derive a list of the main potential mechanisms.

- Portability of qualifications
- Signalling vigour of qualifications
- Acceptance of qualifications
- Reliability
- Content value
- Transparency of the QS
- Flexibility of qualifications and QS (on learning needs, demands for qualifications)
- "Value" of the qualifications
- Cost (of accreditation, assessment, awarding, provision, crediting, fees, opportunity/productivity cost)
- Control of the market for education
- Quality of education, training and informal learning
- Probability of success depending on quality and guidance
- Accessibility
- Effects on qualifications outside the QS
- Pathways
- Flexibility of learning programmes, periods and times (including modularisation and life span distribution)
- Evidence of outcomes of learning if no qualification is reached (partial certification)
- Progression (next steps in study/career; licensing)

Mechanisms and possible effects on individuals, providers and employers

As mentioned earlier, lifelong learning is an activity carried out by individuals, but providers and employers are also important actors. The mechanisms elaborated in the section above might have different effects, on the perceived costs and benefits on the supply and demand side of LLL. The following table shows for each of the mechanisms how and why individuals, providers and employers might respond and influence LLL. Looking again to Figure 1, the following table tackles the link on the right-hand side, the linkages between mechanisms and LLL, whereas the section above dealt with the link on the left hand side - mechanisms and how they are triggered by QS.

Table 2

Mechanisms	**Possible Effects on Individuals**	**Possible Effects on Providers**	**Possible Effects on Employers**
Portability of qualifications	Positive (qualifications could be used in another workplace/country)	Positive (size of market, economies of scale)	Negative (Risk of trained staff leaving the firm) Positive (flexibility in recruitment and deploying labour)
Signalling vigour of qualifications	Positive (enhances chances of recruitment with new employer)	Positive (size of market)	Positive (information about competencies of applicants/about competencies to be achieved through CET)
Acceptance of qualifications	Positive (motivation, possible wage effect)	Positive (size of market)	Positive (low cost of information retrieval; fees)
Reliability	Positive (motivation, enhancing returns, reducing risk)	Positive (enhancing returns, reducing cost)	Positive (improved recruitment)
Content value	Positive (motivation, benefits)	Positive (enhancing returns)	Positive (returns)
Transparency of the QS	Positive (motivation, low cost of information retrieval, opportunity to find appropriate job/course)	Positive (reduces cost of information)	Positive (improved recruitment)
Flexibility of qualifications and QS (on learning needs, demands for qualifications)	Positive (might enhance benefits, motivation, learning programmes according to needs)	Negative? (new programmes have to be developed, existing programmes have to be adapted, demand for tailor-made programmes reduces economies of scale) Positive (developing new markets for programmes)	Positive (higher returns, lower cost)
Specification of entry requirements	Positive (motivation)	Positive (lower recruitment costs) Negative (barriers to courses, less demand)	Positive (more efficient recruitment) Negative (less in company progression)
Cost (of accreditation, assessment, awarding, provision, crediting, fees, opportunity/productivity cost)	Negative	Negative (reduces returns or demand, if costs passed on to learner)	Negative

Table 2 (continued)

Mechanisms	**Possible Effects on Individuals**	**Possible Effects on Providers**	**Possible Effects on Employers**
Control of the market for education	Positive (returns) Negative (training opportunities)	Negative (for those not yet in) Positive (protection against competition)	Positive (more efficient recruitment) Negative (less in company progression)
Quality of education, training and informal learning	Positive (motivation, benefits)	Negative (cost) Positive (reputation, trade)	Positive (efficient provision of competencies)
Probability of success depending on quality and guidance/entry requirements	Positive (motivation, less dropout, benefits)	Positive (less dropouts and failures) Negative (guidance costs if borne by providers)	Positive (efficient investment in training)
Accessibility	Positive (opportunities, no or low barriers) Negative (less returns)	Positive (volume of training)	Positive (greater chance of learning)
Effects on qualifications outside the QS	Positive (more choice) Negative (less returns)	Positive (streamlining reduces cost)	Negative (reduction of provision of competencies for qualifications outside the QS)
Pathways	Positive (signalling returns; licensing) Negative (barriers)	Positive (reducing costs of guidance)	Positive (more efficient recruitment)
Flexibility of learning programmes, periods and times (including modularisation and life span distribution)	Positive (reducing obstacles regarding learning times; modularisation only requires decision upon smaller entities; reduction of learning time spent on contents not needed; re-entry possibilities; reduction of opportunity cost if it can be combined with working)	Negative (higher costs) Positive (if increased demand)	Positive (efficient investment in targeted training; learning time during “off-season” reduces fall in productivity) Negative (allows minimal investment)
Partial certification	Positive (no completely futile investment; useful in the case of re-entry to education)	Negative (more complex timetabling) Positive (larger market)	Positive (easing management of training) Negative (allows minimal investment)
Progression (next steps in study/career; licensing)	Positive (signalling benefits)	Positive (increasing opportunities)	Negative (risk of trained staff leaving the firm)

5. Possible empirical approaches

As previously stated the features of the QS are regarded as independent, causal factors exercising impact on LLL. Empirical analysis of this relationship draws on the stylised description through codification of the country background reports, and makes use of a set of indicators of LLL. At this stage there is no clear analytical path emerging from the data, in fact currently there is no clear picture on the effect of QS on LLL. There are several reasons for this:

- the effect of any component of QS sometimes differs for specific groups of actors (individuals, providers, employers);
- there is no assessment of the relative strength of effects, and for some components the effect on mechanisms is ambiguous;
- there are tensions between the mechanisms, e.g. flexibility and signalling power are likely to be antipodal; and,
- contextual conditions (e.g. labour market) that influence the volume and distribution of LLL and possibly the relationship between QS and LLL have not yet been incorporated.

All these factors advise caution about the statistical method to be used. The decision to use a particular method will be facilitated by the determination of a robust stylised description of each national QS according to the framework of components such as that given in List A in the Annex. The analysis of country background reports will therefore be a first step towards a suitable method. With reference to LLL indicators, OECD holds relevant cross-country data and has, or will have, data from parallel studies, including the Review of Adult Learning and the Review of Policies for Information, Counselling and Guidance. There are several studies of LLL across ranges of countries that can be used for the analyses, including notably work published by EU.

Basically the activity aims at analysis of the relationship of a set of independent variables (some or even most of them nominal classifications) with a set of dependent variables. One could think of applying correspondence analysis or similar techniques, multidimensional scaling, or canonical correlation. There are several assumptions associated with some of these statistical methodologies, among them multivariate normality, homoscedasticity, linearity of relationships, interval or near-interval data, lack of high multicollinearity. Before deciding about explanatory techniques, there will be a stage of exploratory data analysis to identify systematic relations between variables, using a variety of techniques in the search for systematic patterns. Any decision about statistical techniques can only be taken on the judgement of the completeness and quality of country background reports.

Alternative approaches are available: (i) A typology of QS could be developed – on the basis of cluster analysis or any other suitable numerical method, or by grouping countries on the basis of main traits of their QS. Each national QS would be assigned to one of the types, and for each of the types LLL indicators would be analysed. (ii) Still another way of looking on the impact of QS on LLL would be to start with the LLL outcomes, identify a number of countries with higher than average results regarding the quantity, quality and/or distribution of LLL, and trying to trace the features of the NQS in these countries common to them and distinguishing them from countries with lower levels of LLL. The comparison of the two groups aims at tracing similarities or distinctions regarding the features of the NQS.

6. Conclusion

This paper has described in some depth the nature of QS, of LLL indicators and the complexities of discovering causal links between them. En route to these descriptions it has attempted to refine the conceptualisation of the mechanisms which work through the aspirations of individuals, the planning process of providers and the needs of employers.

BIBLIOGRAPHY

Researching a set of components of qualifications systems

Bjørnåvold, J. (2001), *Assessment and recognition of non formal learning in Europe*, KRIVET conference paper, 5th December.

European Commission (2001), *European Forum on Transparency of Vocational Qualifications, Preliminary results of survey*, draft paper.

Gealy, N. (2001), *On linkages between qualifications frameworks*, Joint Forum, London.

Keating, J. (2002), *Qualifications and learning*, unpublished paper.

National Qualifications Authority of Ireland (2001), *Towards a National Framework of Qualifications*, Dublin.

National Qualifications Authority of Ireland (2002), *Frameworks of Qualifications: A review of developments outside the state*, Dublin.

OECD (2000), *Education at a Glance*, Paris.

Qualifications and Curriculum Authority (2001), *Evaluation of the feasibility and potential impact of the introduction of a credit-based qualification framework*, London.

Qualifications and Curriculum Authority (2002), *Evaluation of the national qualification framework*, London.

Westerhuis, A. (2001), *European structures of qualification levels*, CEDEFOP, OOPEC, Luxembourg.

Young, M. (2000), *Contrasting approaches to the role of qualifications in promoting lifelong learning*, paper, London.

Researching a set of components of lifelong learning

Budge, D. (2000), *Motivating students for lifelong learning*, Centre for Educational Research and Innovation, Paris, OECD.

CEDEFOP (Bainbridge, S., Murray, J., 2000), An age of learning: vocational training policy at European level, OOPEC, Luxembourg.

CEDEFOP (Bjørnåvold, J., 2000), *Making learning visible*.

CEDEFOP (Descy, P., Tessaring, M., 2001), *Training and learning for competence*.

CEDEFOP (Sellin, B. 2002), *Scenarios and strategies for vocational education and lifelong learning in Europe*, summary of findings and conclusions of the joint CEDEFOP/ETF project (1998-2002), Luxembourg, OOPEC, Panorama series, 60 pp.

European Commission (2000), *Staff working paper: A memorandum on lifelong learning*, Conference paper, Biarritz, France, 5 December 2000.

European Commission (2001), *European Innovation Scoreboard 2001,* Brussels.

European Commission (2001), *Making Lifelong Learning in Europe a Reality*, Brussels.

European Commission (2001), *National actions to implement lifelong learning in Europe*, Cedefop, Eurydice, Brussels.

European Commission (2002), *European report on quality indicators of Lifelong Learning*, Brussels.

Field, J. (1998), *The silent explosion – living in a learning society*, Adult Learning Australia Inc.

Leeuwen, M. (1999), *The costs and benefits of lifelong learning*, paper presented to the European Conference on Educational Research, 22 September, Lahti, Finland.

OECD (2000), *Where are the resources for Lifelong learning?*, Paris.

OECD (2001), *Economics and Finance of Lifelong learning*, Paris.

OECD (2001), *Education Policy Analysis*, Paris.

Planas, J., (1998) *Agora 2: the role of the company in lifelong learning*, CEDEFOP, Thessaloniki

Verhar, K., Duvekot, R., (2001), *To value informal training as a contribution to European lifelong learning policy*, Universidad Computense Madrid conference, 30th July 2001

Some references for human capital approach

Acemoglu, D. & Pischke, J.-S. (1999), *Beyond Becker: Training in Imperfect Labour Markets*, in The Economic Journal 109 (1), S. F112-F142.

Acemoglu, D. & Pischke, J.-S. (1999), *The Structure of Wages and Investment in General Training*, in Journal of Political Economy 107 (3), S. 539-572.

Altonji, J. G. & Spletzer, J. R. (1991), *Worker Characteristics, Job Characteristics, and the Receipt of On-the-Job-Training*, in Industrial and Labor Relations Review 45 (1), p. 58-79.

Altonji, J. G. (1993), The Demand for and Return to Education when Education Outcomes are Uncertain. In: Journal of Labor Economics 11 (1), p. 48-83.

Becker, G. S. (1993), *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education*, Chicago, London: University of Chicago Press (3rd Edition).

Becker, G. S. (1996), *Accounting for Tastes*, Cambridge, London: Harvard University Press.

Ben-Porath, Y. (1967), *The Production of Human Capital and the Life Cycle of Earnings*, in Journal of Political Economy 75, p. 352-378

Mincer, J. (1974), *Schooling, Experience and Earnings*, New York: National Bureau of Economic Research.

Orazem, P. F. & Mattila, J. P. (1991), *Human Capital, Uncertain Wage Distributions and Occupational and Educational Choices*, in International Economic Review 32 (1), p. 103-122

Schultz, T. W. (1961), *Investment in Human Capital*, in The American Economic Review 51 (1), p. 1-17.

Stigler, G. J.; Becker, G. S. (1977), *De Gustibus Non Est Disputandum*, in American Economic Review 67 (2), p. 76-90.

Some references for Rational Choice Theory

Esser, H. (1991), *Die Rationalität des Alltagshandeln: Eine Rekonstruktion der Handlungstheorie von Alfred Schütz*, in Zeitschrift für Soziologie 20 (6), p. 430-445.

Hogarth, R. M. & Reder, M. W. (Hrsg.) (1987), *Rational Choice: The Contrast between Economics and Psychology*, Chicago, London: University of Chicago Press.

Kapteyn, A., Wansbeek, T. & Buyze, J. (1979), *Maximizing or Satisficing?*, in The Review of Economics and Statistics 61, p. 549-563.

Kirchgässner, G. (1991), *Homo oeconomicus: Das ökonomische Modell individuellen Verhaltens und seine Anwendung in den Wirtschafts- und Sozialwissenschaften*, Tübingen: Mohr.

Lindenberg, S. & Frey, B. S. (1993), *Alternatives, Frames and Relative Prices: A Broader View of Rational Choice Theory*, in Acta Sociologica 36 (3), S. 191-205.

Lindenberg, S. (1990), *Homo Socio-oeconomicus: The Emergence of a General Model of Man in the Social Sciences*, in Journal of Institutional and Theoretical Economics (Zeitschrift für die gesamte Staatswissenschaft) 146 (4), p. 727-748.

Simon, H. A. (1955), *A Behavioral Model of Rational Choice*, in Quarterly Journal of Economics 69, p. 99-118.

ANNEXES

List A: Components of qualification systems

Component	Potential sub-component
Scope of application of the QS	Breadth (international, national, regional) Legal status Sector/industry Collective agreements or agreements by professional organisations
Control of the QS	Government National agency or agencies Social partners Awarding body No clear control Extra-national Stability of control
Accreditation processes for qualifications	Status of institutions involved Extent of public information about process Establishing standards Maintaining standards Conditions for award Process for recognising prior learning Control of accreditation Supply and demand considerations Stability
Framework within the QS	Horizontal and vertical relationships Equivalencies (general/vocational) Initial education/training only Inclusiveness Regulated or part of a regulatory function

Descriptors present in qualifications	Requirement Optional Qualification types Purpose (general, vocational) Content Assessment Levels Learning arrangements Prior attainment Types of assessment APL (non formal, informal) Links to QFs
Access to qualifications for individuals	Entry points Entry requirements Preparatory courses Recognition of prior learning
Progression for individuals	Linkages between pathways, qualification types Routes and pathways explicit Transferability, equivalence of standards No routes
Stability of the QS	Permanent, fixed term, mixed
Awarding processes	Process of assessment (formal, informal) Recognition of prior learning Extent of assessment in qualifications (flexible, minimum, maximum, modal size) Types of certificates Level of regulation Awarding institutions (type and number) Participation of social partners in awarding process
Is there a **credit** system?	Accreditation of learning elsewhere Extent of unitisation/modularisation Rules of combination of units/modules APL/exemptions possible Partial certification
International reference points	ISCED Trans-national (Regional) frameworks e.g. EU-levels frameworks Linkage to ISCO Portability Other

List B: Indicators of Lifelong Learning

Aspect of LLL	Potential Indicators
Skills, Competencies and Attitudes	Literacy level Numeracy level Basic skills learning in adults Availability of work-based skills
Access and Participation	Participation in pre primary education Completion of full upper secondary education programme Participation in tertiary education Participation in CET /mean number of training hours per person engaged in CET Adult share of total enrolments in formal education (by level of education)/Enrolment rates of adults Participation in labour market training (as percentage of labour force) Numbers of unemployed adults learning
Resources for Lifelong Learning	Expenditure per student in elementary and secondary education Expenditure per student in tertiary education Grants and allowances to students/households Public expenditure on labour market training Volume of LLL opportunities provided by government Level of investment in training from employers Range of provision from main institutions including voluntary organisations

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