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Jordi Planas and John Preston

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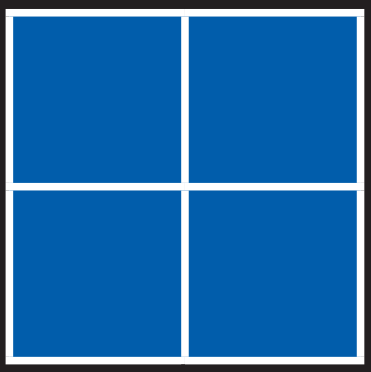

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A Dangerous Obsession? Rethinking National Indices of Lifelong Learning and Competitiveness

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Abstract

In this paper we critique the ways in which indicators of lifelong learning are currently used within international indicators of competitiveness. We consider that, although there is broad agreement that indicators of competitiveness should incorporate not only the quantity but also the quality of lifelong learning, there is still an emphasis on quantity of skill and level of qualification. We suggest that indicators may be enhanced in two ways: firstly, by considering 'skill' not as connected simply to level of qualification but in terms of how various vectors of competence and experience are used in achieving a productive outcome; secondly, by considering regional models of competitiveness / lifelong learning, following the varieties of capitalism literature, rather than assuming that there is one 'ideal' national model. We conclude by providing examples of the sorts of indicators that might make up a Human Resources Index (HRI).

Introduction

Paul Krugman famously referred to policy preoccupation with competitiveness as a 'dangerous obsession' (1994) which is empirically and theoretically ill founded. His argument considered that (empirically) national economic problems were not connected with a nation's ability to trade effectively in international market and that (theoretically) competitiveness was ill-defined, with most commentators considering that it related to 'favourable trade performance and something else' (Krugman, 1994, p. 31). The 'something else' is indeterminate and elusive. Krugman's argument considers that pursuing competitiveness is akin to building bomb shelters in the cold war: reassuring but ultimately futile (Krugman, 1994, p. 41).

Powerful though it is, we should not take Krugman's argument uncritically. It is true that from a neo-classical perspective the nation state is a fallacious unit for the analysis of competitiveness. In a strict neo-classical perspective nations do not compete in the same manner as firms. Firms may go out of business through insolvency whereas, other than in terms of intervention by the International Monetary Fund, this does not apply to nation states. We need to be cautious, though, of taking this fallacy of composition (that a nation is distinct from the firms that comprise it) to its logical conclusions. Although nations cannot be talked about as being 'competitive' in the same way as firms, this equally applies to other macro-economic variables such as inflation (which is an index of prices across the economy: no one individual will experience a 'national' rate of inflation) or unemployment (firms and public institutions are employers not the 'country'). At the same time, nations have an important role in determining the environment (or competitiveness regime?) in which firms operate, including policies on competition, exchange rates, interest rates, human capital formation, research and development policy, and industrial strategy. Although nations may not become 'insolvent', deficits in the current account on the balance of payments have significant implications for other aspects of the macro-economy, particularly economic growth, unemployment and the standard of living. Moreover, competitiveness applies in part to the financial sector where indebtedness can destabilise large sectors of the 'real' economy.

Therefore there are good reasons for nation states to be interested in competitiveness as a national priority, as it is bound up with the quality of life of its subjects. Of course, public

discussions associated with competitiveness have a normative element. Some Marxist and Foucauldian authors have argued that discourses of 'competitiveness' are used to legitimate making increased demands on labour power under capitalism or for purposes of social control (Cole, 1998; Peters, 2001). Although we will not consider these arguments here, it is worth stating that competitiveness is not a value neutral concept, and it contains a number of assumptions concerning the purposes of economic activity.

Within institutional, rather than radical, models of political economy, which are the main focus in this paper, there are good reasons for adopting a national-level analysis of competitiveness. At least in terms of relative cost or product market competitiveness, economists have related 'competitiveness' to wider issues of macro-economic performance. According to Fagerberg (1998, p. 335) competitiveness is concerned with broad macro-economic goals which can be achieved without problems in terms of trade: '…few would probably disagree with the view that it refers to the ability of a country to realise central economic policy goals, especially growth in income and employment, without running into balance-of-payments difficulties.' Thus, for the purposes of this paper, we argue that national competitiveness relates to the macro-economic and institutional environment which helps to shape firm-level competitiveness in terms of price and non-price factors.

Skills are widely seen as important in achieving competitiveness and levels of education are included in most indicators alongside more expansive measures of learning. The World Economic Forum's Global Competitiveness Report (WEF, 2008) includes indicators not only on enrolment in various levels of education (primary, secondary and tertiary enrolment), but additionally on overall internet access and use in schools. The EU's European Competitiveness Report (EU, 2008) refers not only to the quantity of science and technology graduates but also broadband access. In policy terms there is a desire to extend the boundaries of what makes a country competitive beyond mere cost. However, the definitions provided by the Global and European Competitiveness Reports do not encompass what Greenaway (1997) refers to as 'national competitiveness'. They are preoccupied with largely firm or institutional factors which drive 'comparative advantage' (such as factor endowments, productivity and technology) and immediate industrial and trade policy (including factors such as tariffs, quotas and subsidies) rather than 'national competitiveness'. The role of lifelong learning in competitiveness should be seen not only in terms of the quantity of human capital but as part of a broader conception of 'national competitiveness' which includes

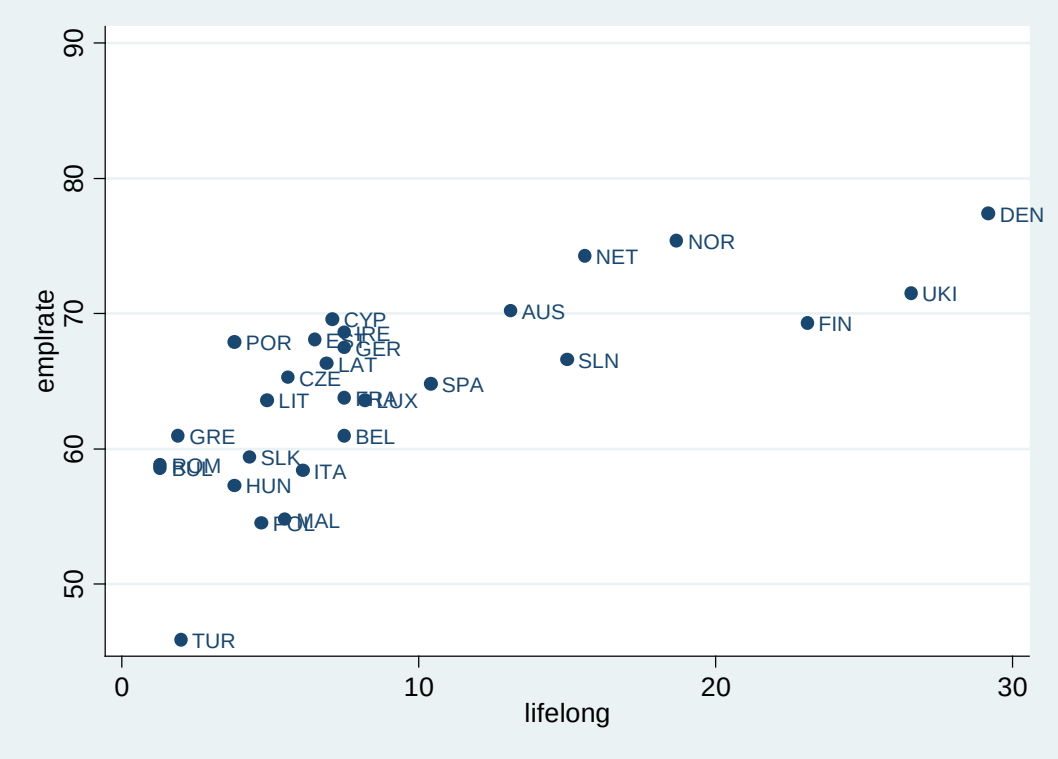
historical and institutional frameworks of learning. A prime aim of this paper is to reconsider current conceptualizations of ‘lifelong learning’ in the formation of indicators of competitiveness.

Lifelong Learning and Competitiveness

The usefulness of current indicators of 'lifelong learning' in assessing international competitiveness is debatable. Some commentators consider that factors such as exchange rate depreciation / devaluation may be important factors in determining competitiveness (Ghosh, Gulde and Wolfe, 2002). Moreover, we may have now truly entered a 'new paradigm' of competitiveness where large national economies struggle for survival in financial crisis, with many costs falling rapidly and services atrophying as the digital economy becomes the free commons. For some, a central paradigm of modernity (capitalism) has come back to bite us with a vengeance as it undergoes one of its periodic crises.

However, at first sight, there appear to be very close correlations between indicators of lifelong learning and indicators which have been traditionally associated with international competitiveness, such as number of patents and labour productivity. Using data from EUROSTAT for 2007, there are significant correlations between lifelong learning and GDP / person (0.45), GDP / hour (0.46), the employment rate (0.72 – Figure 1) and number of patents (0.55) (all correlations are significant at the 5% level). Although correlation does not imply causality, lifelong learning appears to be related to many attributes connected with competitiveness (labour productivity, employment, innovation) (see Figure 1). It is tempting to read off from these indicators that there is an association between lifelong learning and competitiveness.

Figure 1: Lifelong Learning and Employment Rates in European Countries, 2007



Source: Eurostat, 2007

Whilst not denying that lifelong learning is important in influencing competitiveness, we investigate here whether the current emphasis of competitiveness indicators on quantitative and skill-based indicators of lifelong learning might not be misplaced. Current indicators of lifelong learning, informed by human capital theory and latterly by endogenous growth theory, are primarily orientated towards levels of skill and numbers of workers with that level of skill. Ideologically, these indicators inform us that more and higher is better for competitiveness while in fact adopting a very narrow definition of human capital activity. Even in Gary Becker's original formulation of human capital theory, human capital was conceived more broadly than labour market skills, incorporating many different forms of human activity, and any meaningful indicator of lifelong learning needs to take this into account. We therefore take issue with the 'obsession' with levels of lifelong learning (in statistical indices) as opposed to what we describe as the vectoral and institutional

arrangements of lifelong learning. By vectoral we mean that different types of lifelong learning (education, training, experience) can be combined in different combinations to produce different outcomes. This means that a focus on levels of learning is misguided, as it ignores the combinational properties of different types of learning. By institutional arrangements we mean that different ways of organizing lifelong learning provide important qualitative differences between skill and knowledge which cannot be resolved by comparing levels of qualification. We now turn to consider 'vectoral' and 'institutional arrangements'.

Skill Vectors

Lifelong learning and labour markets where traded products are produced might be expected to develop mutually and responsively. This statement may appear obvious, but in much analysis of these sectors they are taken to be separate areas of study. The first (lifelong learning) is often taken as being concerned with socio-pedagogy or skills, while the second (labour markets) is concerned with labour economics or institutions. More prosaically, whereas lifelong learning is considered to relate to human capital formation (and let us not forget depreciation) over the life-course, labour markets relate not only to the purchase of labour but also the rules that regulate its deployment and discarding, and arrangements for collective and individual bargaining, Hence the formation of labour (human capital) is perversely separated from the institutional arrangements by which labour is governed (labour markets) by a disciplinary schism. Although the formation of lifelong learning stocks is influenced by 'signals' or 'demands' from the labour market, this approach tends to regard lifelong learning as secondary to labour markets at least in terms of temporal ordering (labour markets influence lifelong learning).

In challenging this approach, we need to reconsider what it is we mean by 'human capital' and integrate this further with concepts of labour in the abstract and the concrete. Human capital as 'productive capacity' is a reasonable starting point for a discussion of this integration, so long as we take care not to mistake productive capacity for raw individual marginal revenue product (that being the marginal addition to revenue of the employment of an additional unit of labour, ceteris paribus). 'Productive capacity' also includes the bringing forth of labour from an agentic subject of various forms, not just mental and cognitive but also the affective (emotional labour) and the performative (aesthetic labour). These productive capacities may

be collective as much as individual in that various configurations of labour (by organisation, by skills, by experience) may create various productive outcomes for the firm. These productive capacities are vectoral**,** comprising a series of basic skills (knowledge, practical abilities, life skills). Each individual possesses a vector specific to him or her which is probably unique if it is defined in sufficient detail. *It cannot be expressed solely in terms of qualifications.*

If skills are seen as a vector of individual characteristics, this means that they can be acquired in different ways, and in a variety of places. Each element of the vector may be acquired through different channels. It may be acquired through explicit education (qualifications), through implicit education (experience, on-the-job training, learning by doing, etc.), through non-occupational social activities (as consumption, associations, social life experiences, etc.), or it may even be innate (or acquired very early on through primary socialisation). All elements may be acquired in any way, but there are easier, more natural and more likely ways of acquiring some of them, depending on how the education system is organised. Some skills may indeed be acquired through an alternative channel or by some combination of these methods. One and the same level of overall skills may thus be acquired in a variety of ways, and may be possessed by individuals with different educational and occupational histories. These differences may relate to when certain skills were acquired (when first starting work, or during the career), to how they were acquired (*implicit education* or *explicit education*), to the time taken to acquire them, and of course to the broader economic circumstances of different generations' careers.

As a general rule, workers do not use all the skills that they possess in any one job. There is no intrinsic (absolute) set of skills. Whether skills are relevant (productive) will depend on the circumstances in which the job is performed. Some authors, such as De Terssac (1992), even doubt the real existence of individual skills, or at least that these can take material form outside a collective context. Skills are of value in specific jobs, and even in specific working situations. Individual skills will be used as called for by the working situation.

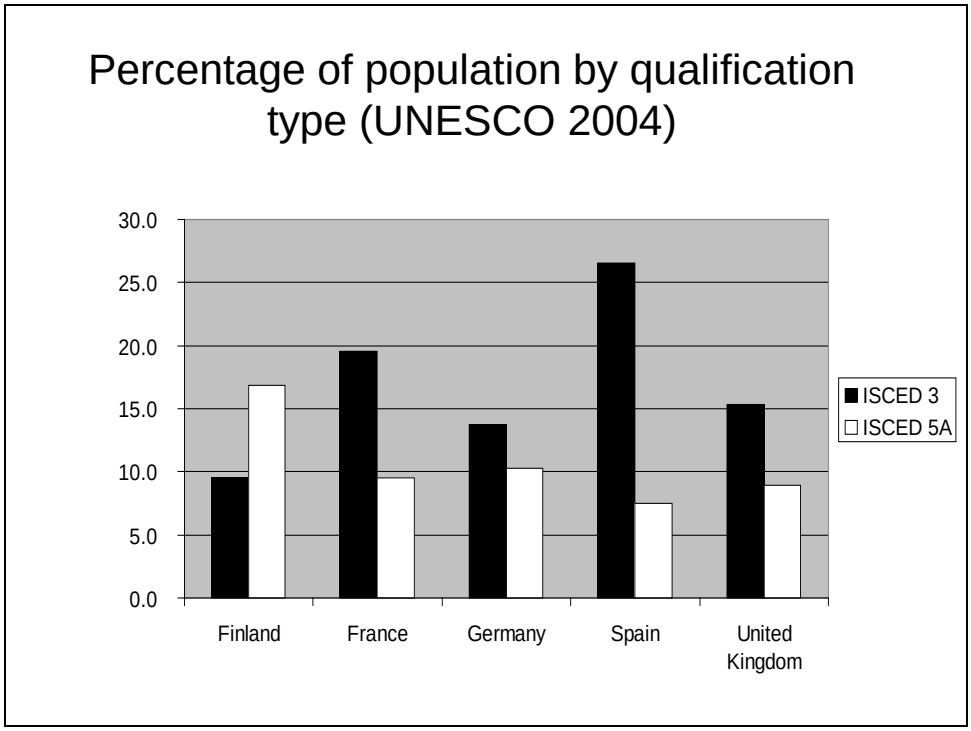
Lastly, the vectoral dimension of skills, the combined value of the component elements, and the multiplicity of working situations in which they are exercised, *make it very difficult to determine productive* performance *ex ante*. In any recruitment process, the employer will primarily be looking for signals of applicants' potential productivity. Some of this

information is supplied by qualifications (Arrow, 1973), which serve as an imperfect measure of productive ability. Examination of the various skills possessed by an individual would, however, provide a far more reliable 'signal' (in the sense of Spence, 1974) of individuals' productivity (in any particular job). The recruiter faces a two-fold task. On the one hand, the individual's skills need to be identified, and on the other, they have to be matched to a level of potential productivity in each job.

If we accept that productive capacities are acquired in a vectoral way and from different combinations of formal and informal activities, we must accept that the productive capacities of individuals result from both firms' intentional reactions to their immediate production needs and from individuals' education and employment histories. As a result of diachronic dynamics between supply and demand sides in labour markets, the supply side dynamic is dominated by the medium and long term as opposed to the short term in defining demand (Vinokur, 2000), for two reasons: firstly, the horizon for individuals' educational decisions is mainly related to their life strategies rather than the temporary and contingent needs of the labour market; secondly, because the productive capacities of the active population have also been constructed in the past, we must be aware that the current supply has been constructed by all the generations present in the labour market as geological strata are formed on top of each other.

As shown by Figure 2 (below), different countries even in the same geographical region (Europe) have very different mixes of qualifications. For example, in Spain the percentage of the population with ISCED 3 qualifications is three times greater than those holding ISCED 5 qualifications. France, Germany and the United Kingdom also have more people qualified at ISCED 3 level than ISCED 5 but the disparity is not as great as in Spain. Among these five countries Finland stands out in that the proportion of individuals with ISCED 5 is greater than those with ISCED 3.

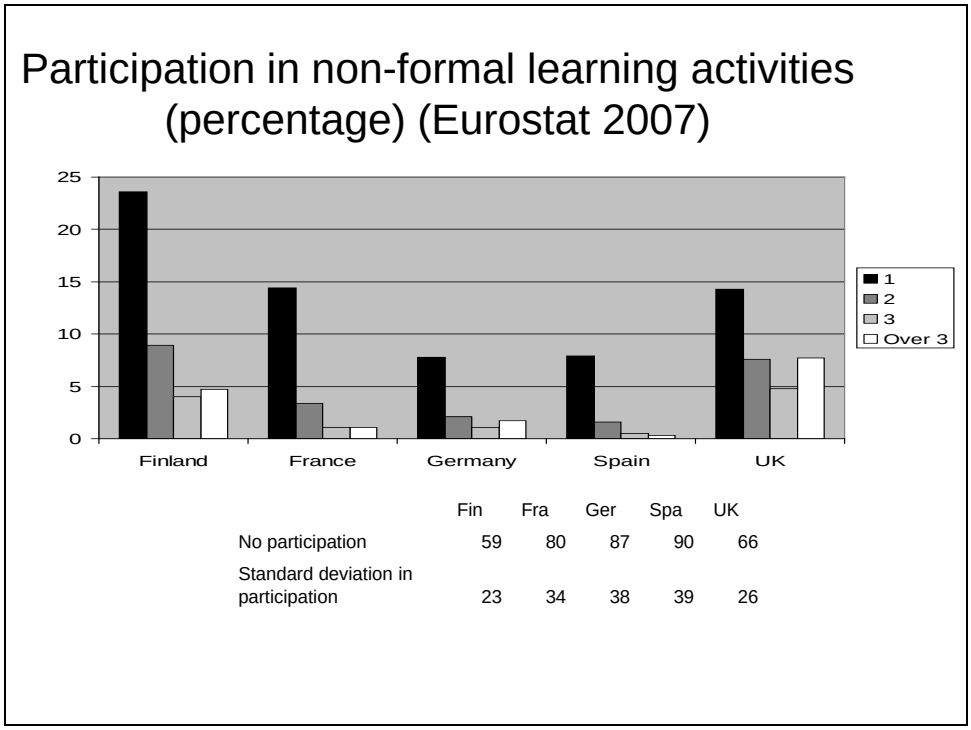
Figure 2: Percentage of Population by Highest Level of Qualification in Selected European Countries, 2004



Source: UNESCO, 2004

Thus, changes in supply side of the labour market are characterised by demographic inertia (a 'rump' of usually older populations in the EU with ISCED 3) and general demographic trends. We also see that the take up of non-formal, informal and internet-based education differs between countries (Figure 3 and Tables 1 and 2). Although it is apparent that the country with the greatest level of formal qualifications (Finland) also has high participation in these other forms of learning, the five countries overall have very differentiated mixes of lifelong learning.

Figure 3: Participation in Non-Formal Learning Activities in Selected European Countries, 2007



	Fin	Fra	Ger	Spa	UK
No participation	59	80	87	90	66
Standard deviation in participation	23	34	38	39	26

Source: Eurostat, 2007

Table 1: Participation in Informal Learning Activities in Selected European Countries, 2007

Participation in informal learning activities (Eurostat, 2007)

Nation	Fin.	Fra.	Ger.	Spa.	U.K.
%	69.5%	45.9%	37.3%	16%	---

Source: Eurostat, 2007

Table 2: Computer Use in Selected European Countries, 2006

Used a computer every day (Eurostat, 2006)

Nation	Fin.	Fra.	Ger.	Spa.	U.K.
%	76%	70%	70%	63%	69%

Source: Eurostat, 2006

Clearly, people born, educated and working at different times have had different opportunities to learn by formal and informal ways. For example, the current active population was born between the 40s and the 80s and took part in post-compulsory education between the later 50s and the early 2000s. To elaborate, if we approach the issue of models of production of competences and their indicators from a historical perspective, we might say that, with regard to the modalities of production and recognition of competences, through the twentieth to the twenty-first century, we have had a three-period history. Naturally, there have been variations between countries but a few generalisations can be made. During the first half of the twentieth century, for the most part, the competences that were required for a job were acquired while carrying it out, and the extent to which these skills were certified (by diplomas) or recognised in other ways (eg, in terms of pay and occupational status) varied greatly between countries – and also varied between sectors within countries. In some sectors and countries, internal labour markets predominated within firms; in other cases skilled workers could acquire a 'trade' certified by different modalities of access to guilds ('professional markets').

From the Second World War, and mostly from the 1960s onwards, supported by human capital ideology, the phenomenon of 'educational expansion' appeared in all countries. It was characterised by a consensus among states, families and companies in favour of increasing levels of formal initial education. As a result, during the second half of the twentieth century, although with different rhythms and modalities according to the country, each generation was better educated than the previous one (Béduwé and Planas, 2003). Without completely supplanting experience, during this period, formal education became increasingly important in the production of competences, and school-based qualifications became increasingly important to certify and identify competences as well.

Over the last decades of the twentieth century and the beginning of the twenty-first one, a slowing of growth of formal initial education took place. At the same time, on the one hand, there was an increase in the spaces and mechanisms of competence acquisition, among them, virtual competences. On the other hand, the training processes, both initial and lifelong, became more complex. Simultaneously, productive processes quickly changed due to technological developments, work organisation and market globalisation. All this has implied new competence requirements, which are sometimes difficult to acquire through formal education, and greater instability and uncertainty in those competences acquired in the

medium and long run. One of the effects of these changes is that the certificates of formal education, although still important, become increasingly limited and incomplete as indicators of people's competences. New information and competence-recognition tools are becoming predominant and are needed both for human resources management and the regulation of the labour market, as well as the organisation of lifelong learning pathways. In analytical terms the research that is under way on the productive abilities of the employment offer is based on the need and the difficulty to measure people's competences (Borghans, Green, Mayhew, 2001).

Lifelong Learning Institutions

So lifelong learning is not so much a 'stock' of learning as it is a 'vector' of learning types, each of which was formed within a historical context. It is also the case that the ways in which human capital 'comes to market' are very different to the ways in which markets operate for physical commodities such as oil. Indeed, labour comes to market through a variety of collective and institutional arrangements, which differ between nation states and regions. The 'market' for labour is rarely a 'free' market, at least in European countries, and it is rare for individual units of labour to be 'traded' without union and social partner negotiation. Nevertheless, these institutions and collective arrangements can be seen as part of each country's human capital as they affect the ways in which the capacity to labour within humans is deployed. As indicated by Germe (2001), labour market information on the productive capacities of the labour force is based on 'norms' as much as on manpower requirements planning:

> The norm has become an essential point of reference for agents, for their decisions in the labour market. The *norm is not a rule*, or about market matching, it is rather a reference to a social construction that will guide decisions of those managing educational and training systems, those looking for qualifications and those recruiting or looking for employment (Germe 2001:7).

These 'institutional norms' cannot be reduced to cost / benefit mechanisms. Neither can they be simply reduced to path-dependency. To elaborate, path dependency is often used as an explanatory device to link various social systems (such as the development of lifelong

learning systems), but path dependency is a descriptive meta-theory which of itself has no analytical power. Indeed, the best use for the term is as a conceptual 'bag' which encompasses other explanatory mechanisms. Path dependency theories include inertia (that systems are likely to replicate their past structures) and cost-based theories.

Cost-based theories have resurfaced under the label of institutional economics but these theories are heavily influenced by neo-classical economics. Cost-based theories argue that rational actors will act in such a way as to maximise their utility in market-based transactions. One side of this is in reducing the costs of such transactions. In making a transaction between two parties there will be implicit costs involved. In the employment relationship these may involve information costs (costs to employers and employees in identifying the benefits and costs of entering into an employment relationship) and contract costs (the costs of setting up contractual terms between the two parties). Once the transaction is made there are then governance costs involved in making sure that each party keeps to the terms of the contract. According to 'transaction cost economics', social organisation helps to reduce transaction and governance costs. There are a multitude of examples of this process. If a national system of qualifications exists then this will reduce the costs to employers of assessing skills for every candidate (information costs); if trade unions enforce standard employment conditions for workers then this reduces the cost of drawing up contracts for individual workers (contract costs); if apprentices are socialised into working in a co-operative and self-motivated way then this reduces the costs of making sure that they act in the interests of their employer (governance costs).

Path dependencies between lifelong learning and labour markets may then occur when arrangements for cost reductions in one area change the costs and benefits structures in another. For example, if employee training costs are kept low by not providing strong vocational socialisation, then this increases governance costs for employers and also possibly increases information and transaction costs (as employers have little knowledge of employee aptitudes). However, this also incentivises weak employment protection as employers have an incentive towards flexible recruitment practices in order to reduce their reliance on less competent employees. Lifelong learning and labour markets are hence connected through mechanisms of cost sharing and through the micro and meso cost-benefit decisions of agents.

The difficulty with accounts such as this, which rely on (albeit sophisticated) cost-benefit rubrics, is in the abstraction of the collective and the institutional. In transaction cost economics, the collective exists in so much as individuals are incentivised to join in order to minimise their own costs. Trade unions are therefore 'clubs' in which members join in order to maximise their benefits and minimise their costs. Although transaction cost economics can explain why trade unions might behave in counter-intuitive ways (eg reducing wages to increase employment if this results in greater future benefits for the members of the union), it does not dwell on the other side of the mechanism, which is the effects of membership of the collective on the psychology of the individual. In summary, mechanisms of path dependency need to be situated within a political context. As Kathleen Thelen states in her discussion of the political economy of skills: 'Once in place, institutions do exert a powerful influence on the strategies and calculations of – and interactions among – the actors that inhabit them. As power-distributional theories suggest, however, institutions are the object of ongoing political contestation… the present study… recovers the political dynamics that drive institutional genesis, reproduction and change' (2004, p. 31).

An alternative, and potentially more productive approach to considering differences in labour market institutional arrangements is through the 'varieties of capitalism' literature which helps to explain divergences in institutions and outcomes in various capitalist economies (Hall and Soskice, 2001). This approach enables us to move beyond convergence and idiosyncratic views of contemporary political economy. The convergence view of contemporary political economy assumes that, due to pressures of globalisation and internationalisation, economies will tend to follow similar strategies with regard to economic and social policies. Thus, for example, marketisation of public services, deregulation of labour and financial markets and privatisation of formally public sector provision are expected eventually to become the policies followed by all states. In contrast, the idiosyncratic perspective considers that nation states are relatively free to adopt policies and diversity in political processes and that internal pressures will produce divergent economic and social policies across countries (see Radice, 2000 for an overview of these perspectives).

At some levels of interpretation there is truth in both these perspectives. All countries are subject to the pressures of globalisation but there is no reason to believe that these forces will be dealt with in the same way in different nation states. In the area of lifelong learning, for example, Planas (2009) has noted that employment practices are affected by a country's past

history of lifelong learning more than by its present policies. The accumulated skills profile of a population can not be changed quickly, and employers are forced to adapt to the labour force which they already have. A new labour force, like institutions or systems of governance, cannot be altered quickly. The debates which exist within the varieties of capitalism literature concerning the specific forms taken by each 'variety' are actually a matter of scale and temporality. The extremes (represented by convergence and idiosyncratic paradigms) can be seen to relate to various time scales, with convergence obviously related to a long time scale and at a high level of abstraction while idiosyncrasy is related to a shorter time scale and a low level of abstraction, examining the short term reactions of systems. At a fine level of detail, all systems are idiosyncratic as the national situations faced by various systems are different. At a high level of abstraction, all systems are convergent as they are increasingly integrative of capitalism as a social system.

The varieties of capitalism' perspective supplants convergence (globalisation) and idiosyncratic (discrete national) models of political economy with one which recognises regional, linguistic or historical homologies between nation states. Although these taxonomies are of importance in the varieties of capitalism literature, the nation state is the primary unit of agency with regard to social and economic policies. Within this agentic context, prevailing institutional arrangements must be accounted for which means that there are incentives to produce certain types of policy and action. These incentives produce limited forms of path dependency such that most capitalist economies come to resemble either liberal market economies (LMEs) or co-ordinated market economies (CMEs). In principle, there is no normative superiority for either LMEs or CMEs but each system will have an institutional comparative advantage in the world economy.

Although evolutionary and institutional economics has had a considerable influence on the varieties of capitalism perspective, it is possible to consider other approaches which yield similar results. For example, inertia may lead to a situation in which policies are followed based on past policy formation despite their efficiency or otherwise. Alternatively, conflict models of political economy may regard the orientation towards a LME or CME model as resulting from the relative strength of various social actors. However, whatever mechanism is supposed, the varieties of capitalism perspective has considerable descriptive (if not obvious analytical) power.

That being said, there is a debate in the literature regarding the number and nature of different varieties of capitalism. In part, this is due to methodological problems. In particular, there is no clear way of deciding which variables should be selected as criteria for allocating countries between different groups. However, within the broad categories suggested by Hall and Soskice (2001), it is possible to distinguish between different lifelong learning / labour market configurations (Green, Preston and Janmaat, 2005), which we now go on to discuss.

Lifelong Learning and Competitiveness Clusters

Rather than considering competitiveness and lifelong learning to be scalar concepts (eg one for which a score can be calculated and countries can be compared on various dimensions), the above discussion of varieties of capitalism suggests that it may be better to consider them as configurations. In order to investigate this we conducted some initial analysis on Eurostat competitiveness data (see Table 3 below). Substantively, there are significant correlations between many of the variables which imply that national clusters may exist in terms of the competitiveness strategies pursued by countries. To operationalise competitiveness we used three measures of economic performance from EUROSTAT statistics: productivity (GDP / worker), skills (% of population who have participated in lifelong learning) and innovation (number of patents). Note that we do not consider these to be nuanced and definitive indicators of competitiveness, but they are measurable and comparable between European countries. In this analysis we exclude small countries and those for which full comparative statistics are not available.

A cluster analysis was conducted, using the method of average linkage and analysis of a dendogram. This seems to provide some (tentative) evidence that there are specific regional systems in terms of competitiveness / lifelong learning. We find that there are six regional clusters. Firstly, there is a continental European cluster (France, Belgium, Austria) with relatively high GDP / worker but relatively poor participation in lifelong learning. One may also include Germany in this cluster which emerged as a separate category due to its exceptionally high level of patents. Secondly, we find a Nordic cluster with high scores on all measures of competitiveness. Thirdly, an English speaking cluster (UK and Ireland) emerges with moderate scores on most measures. Fourthly, we identify a Southern Mediterranean

cluster (Spain and Greece) and finally a cluster of Eastern European countries and Turkey where scores are low on all three measures.

Table 3: Competitiveness Clusters, 2007

Country	GDP / worker	% of workforce engaged in lifelong learning	Patents	Cluster
France	123	8	128	1
Belgium	132	8	135	1
Austria	121	13	166	1
Finland	114	23	221	2
Denmark	107	29	200	2
Netherlands	114	16	243	2
Germany	107	8	282	3
UK	111	27	98	4
Ireland	136	8	59	4
Spain	103	10	29	5
Greece	120	2	7	5
Portugal	69	4	6	6
Romania	41	1	1	6
Czech R.	73	6	9	6
Lithuania	60	5	3	6
Turkey	47	2	1	6
Bulgaria	36	1	2	6
Poland	62	5	4	6
Slovakia	76	4	4	6

This analysis indicates that, although there is diversity in scores in terms of competitiveness indicators, there are similarities between countries that might be said to form 'regional groupings'. Of course, there are various qualifications that must be made here. The choice of competitiveness and lifelong learning indicators will obviously influence the analysis. However, as suggested by Green, Preston and Janmaat (2006), these clusters follow groupings in terms of lifelong learning and welfare systems (Nordic, Continental European, English Speaking, Southern European / Eastern Europe). On the basis of this analysis, we conjecture that there may be different national groupings that are connected with regional LLL / welfare groupings. Further analysis of this issue would potentially be of great interest. However, for the present paper, we confine ourselves to further discussion of indicators of lifelong learning and human resources in general.

Conclusion: Towards a Human Resources Indicator

The development of indicators of human resources has long been dominated by labour market dynamic analysis which adopts a 'matching approach' (see, for example, Klees 1989; Parsons, Bowles and Gintis, 1975; Baudelot and Establet, 1973) This approach has been based on two main (fallacious) assumptions: first, that labour market dynamics are based on 'provider–customer' logics (the educational systems has to satisfy demand-side needs) and, second, that the main source of productive capacities are the formal educational system and the main 'signal' and measure of them is educational qualifications. This approach has led to the consequence that, if the supply side is not really active in labour market dynamics, the main problem to solve is to match the education results to the demand side needs. The repeated failure of this approach has required new research approaches characterized by considering the supply-side of the labour market (Planas et al. 2001; Béduwé and Planas 2003). Currently, in the framework of the Knowledge Society, and seeking to incorporate the process of acquiring productive capacities into a Lifelong Learning paradigm, we need to progress in our capacity to measure the productive capacities of the people according to this new context. In doing so, we return to the literal sense of human capital, rather than a mechanistic form of human capital which includes the various ways in which productive capacities may be abstracted from workers (in a vectoral sense) and the institutional arrangements for the deployment and employment of labour. This approach to human capital, which may better be called a human resources approach, moves us away from a concentration

on the 'level' of human capital and towards an approach concerned with how varieties of human capital are employed to bring about a particular production possibility and its institutional arrangements which makes more explicit the connection between human capital and labour markets. We would argue, therefore, that lifelong learning measures within indicators of competitiveness need to take into account firstly the dynamic ways in which different forms of lifelong learning may work together to produce a particular productive outcome, and secondly how labour and learning are organised within differing national systems.

Appendix 1: What Might be Included in a Human Resources Indicator at Country Level?

Competences and their indicators cannot be limited to formal education and its certificates.
Indicators have to consider KS (Knowledge and Skills) and LLL (Lifelong Learning).
One of the priorities of research with regard to the labour market is searching for new indicators of the competences and Knowledge in the employment supply.
The progress made in research on competence indicators is still very limited.

Indicators on labour market supply based on competences have to include:

1.- Formal education indicators (some possible)

Level of education (average) or others measuring the amount of formal education.
Educational expansion speed.
Gini index, or standard deviation, on levels of education between populations and ages.
General education oriented or VET (Vocational Education and Training) oriented distribution of generations in the educational and VET pathways.
Young people's educational expectations (tertiary oriented vs secondary education oriented)
Gender education pathways diversity.
Migrants access, and education pathways diversity. Reintegration after leaving initial education.
Worth (wages, employment, status) of the qualifications in the LM (Labour Market) by age and gender.
Barriers (kind of filters) to accede at upper secondary education.

2.- Non formal education indicators

CT (Continuing Training) participation by age, qualifications level, country of birth, and gender
CT induced from firms.
Non formal education as consumption (individual's initiative).
CT goals from the individuals.

3.- Informal education indicators

Width of hierarchies in firms as indicator of quality (and complexity) of work.

Investment in ICT (Information and Communication Technology) in firms as indicator of quality (and complexity) of work.

Time distribution as indicator of quality (and complexity) of life.

Presence of learning tools in day to day life: internet, computers, books, as indicators of quality (and complexity) of consumption.

Participation in associations, charity activities and political participation as indicators of vital experiences as a learning process.

Use of other languages other than mother tongue.

Appendix 2: Competitiveness Statistics

Table 4: Full competitiveness dataset (Source: Eurostat 2007)

Country	abbrevi	gdpers	gdphr	emplrate	unemp	upsec	lifelong	patents
Belgium	BEL	131.8	124.1	61	7.5	82.4	7.5	135.142
Bulgaria	BUL	36	31.2	58.6	6.9	80.5	1.3	1.719
Czech Republic	CZE	72.9	53.4	65.3	5.3	91.8	5.6	8.973
Denmark	DEN	107.2	103.7	77.4	3.7	77.4	29.2	200.445
Germany	GER	106.9	110.8	67.5	8.4	71.6	7.5	281.844
Estonia	EST	67.9	47.6	68.1	4.9	82	6.5	
Ireland	IRE	135.6	106.5	68.6	4.5	85.7	7.5	58.666
Greece	GRE	119.8		61		81	1.9	6.819
Spain	SPA	102.7	92.3	64.8	8.3	61.6	10.4	28.554
France	FRA	123.3		63.8	8.3	83.2	7.5	128.497
Italy	ITA	109.2	89.9	58.4		75.5	6.1	79.127
Cyprus	CYP	86	67.5	69.6	3.9	83.7	7.1	
Latvia	LAT	55.1		66.3	5.9	81	6.9	
Lithuania	LIT	60.1	45.6	63.6	4.3	88.2	4.9	2.792
Luxembourg	LUX	184.4	170.2	63.6	4.9	69.3	8.2	235.806
Hungary	HUN	75.5	55.5	57.3	7.2	82.9	3.8	
Malta	MAL	90.9		54.8	6.3	50.4	5.5	9.678
Netherlands	NET	113.7	120.8	74.3	3.2	74.7	15.6	243.342
Austria	AUS	120.6	99.4	70.2	4.4	85.8	13.1	165.612
Poland	POL	61.5	45.5	54.5	9.6	91.7	4.7	3.659
Portugal	POR	68.6	57.4	67.9	8.2	49.6	3.8	5.825
Romania	ROM	40.6		58.8	6.7	77.2	1.3	1.157
Slovenia	SLN	86.3		66.6	4.7	89.4	15	53.801
Slovakia	SLK	75.8	60.8	59.4	11.3	91.5	4.3	3.658
Finland	FIN	114	97.2	69.3	6.9	84.7	23.1	221.065
Sweden	SWE	114.3	105.4	73.1	6.1	86.5		242.027
United Kingdom	UKI	111.3	89.8	71.5		78.8	26.6	98.31
Croatia	CRO	65.7		55.6	9	94.6		10.897

Macedonia, the former Yugoslav Republic of	MAC							
Turkey	TUR	46.6		45.9		44.7	2	1.495
Iceland	ICE	102.5		84.6		49.3		
Norway	NOR	158	167.3	75.4		93.3	18.7	62.659
Switzerland	SWI	106.3		77.9		76		419.136
United States	USA	138.5		72	4.6			117.335
Japan	JAP			70	3.9			182.397

Table 5: Pairwise Correlations

	gdpers	gdphr	emplrate	unemp	upsec	lifelong	patents
gdpers	**1.0000**						
gdphr	**0.9664***	**1.0000**					
emplrate	**0.4591***	**0.4773***	**1.0000**				
unemp	**-0.2756**	**-0.2671**	**-0.6415***	**1.0000**			
upsec	**0.0619**	**-0.0990**	**0.0432**	**-0.0038**	**1.0000**		
lifelong	**0.4510***	**0.4694***	**0.7238***	**-0.4001**	**0.1856**	**1.0000**	
patents	**0.5287***	**0.6415***	**0.6558***	**-0.3687**	**0.0195**	**0.5483***	**1.0000**

Table 5 (above) shows pairwise correlations for data in the set. As can be seen from the table, there are significant correlations at the 5% level for a number of competitiveness variables.

Appendix 3: Data Sources

Contemporary data on factors pertinent to competitiveness was gathered from EUROSAT. This included data on productivity (GDP per. employee and GDP per. hour worked), employment rate / unemployment (quantity of human capital employed), completion rate for upper secondary and engagement in lifelong learning (percentage of the population who have completed education beyond formal education) and number of patents submitted to the EPO (a crude measure of national competitiveness). The dataset constructed is provided in table 4 (above). Tables 1 and 2 refer to non-formal and informal education. Non-formal education includes activities such as on-the job training and distance education. Informal education includes activities such as self learning, guided visits or coaching. Tables 1 and 2 indicate participation in either informal or non-formal learning in 2007 as a % of the population (e.g. those who participated at least once).

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