



Educational efficiency and the markets for competence

The mature industrial world is currently in the midst of a slow-motion change of its production technology. This transition is hardly noticeable from year to year, but when seen in a historic perspective it will constitute a radical change in the organization of production of the now mature industrial economies. For this transition to be successfully concluded, however, the mature industrial nation requires a significant amount of industrial, social and political competence on the part of its firms, its population and its political representatives. The bulk of this transition will be concluded through the labour market (see Figure 1).

tion in which human competence and small scale are increasingly accounting for the high value added production of a successful economy (Eliasson 1994). This transition is made possible by the innovative creation of new technologies, but also, and increasingly forced on the mature industrial economies by competition from previously not industrialized countries. The currently liberalizing, formerly planned economies constitute a particularly dynamic element in this process. These nations are rapidly learning the old industrial technologies and making it impossible for the rich and high-wage countries to profitably continue simple production at high wages. This development



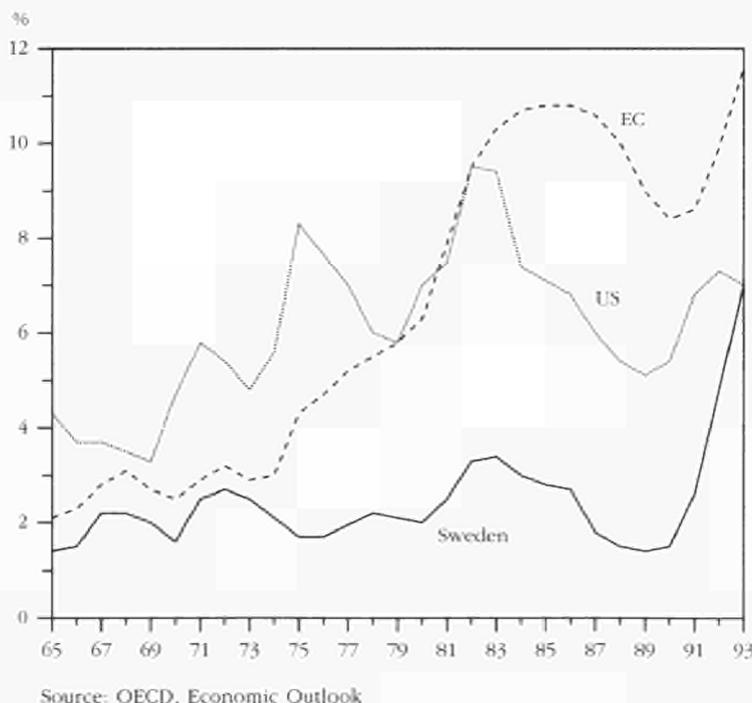
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The mature industrial economies are in the midst of a slow motion change of production technology, forcing simply high-wage production to close down, hopes for the future being pinned on the establishment of new, high value-added and small scale competence-intensive production. Europe is in bad condition compared to the US, exhibiting high unemployment, rigid labour market institutions and low mobility.

Education not only provides knowledge and skills but also offers a selective path into the job market. The possibilities of pursuing that path depend on the operational characteristics of the labour market and the willingness of individuals to move in search of better job opportunities. Individual welfare and economic efficiency, hence, depend critically on the ability of policy makers to forge a competitive combination of educational efficiency, labour market flexibility and social insurance.

Figure 1:
Open unemployment 1965-1993 in the U.S., in Europe and in Sweden



The old hardware-based mechanical engineering technology on which the industrial revolution was once based is giving way to a different production organiza-

tion is likely to continue and to force these industries and high-wage labour on simple production tasks to move to other markets and more advanced jobs.



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This ongoing transition of rich industrial nations, creating unemployment and labour market distress in its wake, thus places education and human capital in focus. Without appropriate retooling of the labour force, future economic growth and welfare will be at peril, as we are now beginning to understand.

This paper focusses on certain characteristics of human capital that play critical economic and social roles in the current transition processes of mature industrial nations. The prime educational concern is vocational training, but we find that vocational training has to be very broadly defined to capture the competence that is eventually put to productive use in the economy; in fact most of the educational system of the economy.

Not much research has been carried out on the nature of competence put to use in production. Therefore, most references are to U.S. and Swedish research literature. The problem is, however, common to practically the entire industrial world, although Europe appears to suffer most in the transition.

Education is becoming really important

Economic progress, technical change and adjustment to competitive challenges in international markets are synonymous with constant change in the organization of production. As this transition speeds up, increased pressure to perform will be placed on the labour markets of mature industrial nations, or rather on their *markets for competence*, since both individual, firm and macroeconomic performance will increasingly depend on how

1. scarce human capital is allocated to jobs and
2. individual and organizational (firm) competence capital are created and accumulated.

Efficiency in both respects is vested in the institutions of the labour market. The labour markets of Europe do not appear to have functioned well after the oil crises of the 1970s compared to the labour markets in the US (see Figure 1). Also the

Swedish labour market, famous for its mobility policies and retraining programs now appears to have become stuck close to the two-digit European unemployment level.

Apparently this policy challenge of western industrialized nations, and Europe in particular, cannot be dealt with intellectually in simple macroeconomic categories. The adjustment and the policy solutions are to be found at the micro level, and even though human capital or competence will play a decisive role, attention will have to be refocused towards the selection phenomena that dominate the labour market process and the relative importance of internal and external labour markets (Eliasson 1991, 1992c). *Educational and labour market performance will have to be regarded in one context.*

Human capital is different

Human capital distinguishes itself from other forms of capital in three important respects. It is

- extremely *heterogeneous*
- *redundant* in each application and
- its economic value depends on how it has been *allocated*.

These three properties also define the competitive advantages of human capital, its flexibility and its dominance over all other forms of capital. The capacity of a human being to perform all kinds of tasks is enormous (heterogeneity). This, however, also means that most of the intellectual capacity of a human being is idling (redundant) most of the time and that the productivity and the earnings capacity of an individual will normally be below potential if he or she has not happened to find the job which best suits his or her very diverse intellectual capacities. Heterogeneity and complexity (of human capital) increase with education and accumulated experience. The more advanced the economy the more varied the particular characteristics of individual human capital that are put to use in each job context, and the larger the resources



that have to be invested on the job to match the worker with his or her task. As a consequence, *the more advanced the economy, the more important* for its performance and for the wellbeing of its citizens are the matching functions of the markets for competence.

The fact that human-based competence in individuals and firms dominate other forms of capital used in production means that the productivity of all resource inputs in production depends on the competence of those managing them, be it the top competent team of a firm (Eliasson 1990b), the head of a factory or the skilled worker operating an expensive machine. It therefore becomes important to organize markets such that this ultimate, human based competence capital is efficiently allocated. This is the task (for individuals) of the labour market and (for the firms and parts thereof) of the market for corporate control (Pelikan 1989, Eliasson 1991). The negative consequences of a misallocation at that level of the economy may be very serious. This makes it important to understand, not only how skilled labour and executives are compensated and allocated, but also the inputs of competence among central policy makers, i.e. among those who have taken responsibility for solving the European unemployment problem.

The labour market mismatch

The classical economist would refer to the high open unemployment in Europe as a classical problem of imperfect pricing in the labour market. With more flexible wages the unemployment problem would go away. Even though this may be the case in a trivial sense, and even though the institutions of the overorganized European labour markets can be blamed for a large part of the extreme open unemployment, the problem goes much deeper than that. The increased rate of structural change in the mature industrial economies forces a larger proportion than before of the labour force into unemployment. The imperfect labour markets of most industrial nations may, therefore, no longer be capable of matching the increasingly heterogeneous competence characteristics of

human beings with unclear competence demands. Since job specifications are becoming increasingly diffuse and subject to constant change, job matching has increasingly become associated with a significant investment in adjustment training at the workplace. The profitability of that investment, and therefore also the placement potential of the individual depends critically on earlier educational performance (receiver competence). This is making individuals with insufficient education increasingly difficult to place at wages considered reasonable in a rich western society. As I will argue below, full employment will require both a motivated school experience of the individual and an active labour market search by the individuals themselves that may not be compatible with the standard wage earners employment contract, so common in Europe. As a consequence, if not radically reorganized, the labour markets of the industrial nations may no longer be capable of achieving a full employment economy.

That imperfect pricing in the labour market can cause unemployment is an irrefutable proposition. In a functioning labour market young new entrants would fetch very low wages, since they are normally not very productive. Unions may, however, think of new entrants as a competitive threat to their members, insiders, and thus negotiate for very high entrance wages for the newly employed, thus causing unemployment among the young, and worse, a tendency among employers to try to make the young entrants productive very quickly by putting them on simple manual tasks, thus giving them few opportunities for internal competence development (see Eliasson 1992c).

The standard policy to counter youth unemployment has been to subsidize such jobs out of public budgets, and/or to provide unemployment benefits that are often larger than the young worker would fetch during this first year, thus depriving him of the economic stimulation to search for the best opportunities in the labour market. Also minimum wages have been demonstrated to cause positive but not very strong unemployment effects, reflecting the fact that minimum wages are very low and that very few people ever reach that level. Strong unemployment effects,

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on the other hand, have been found to be associated with (actual) high youth wages (Hamermesh 1993). High entrance wages imposed in a cartelized labour market, hence, is probably the main reason for high unemployment among the young.

As it appears in the policy discussion the labour market policy challenge of Europe boils down to a choice between the "negative" solutions of free and unrestricted wage setting or continued high unemployment, on the one hand, and the possibility of a "positive" educational solution on the other. If the educational solution does not work, Europe will be stuck with continued high unemployment and/or widening income distributions, since an increasing number of people will not be found competent for the new jobs created. The positive educational policy solution, however, is only a possibility, and it very much highlights the theme of this paper, namely that competence is necessary but not sufficient. The labour market has to be more informed and radically deregulated. Potential employers have to be competent in identifying those workers looking for a job that possess the demanded qualifications, and job contracts have to be redesigned not only to recognize the possibilities of mistakes but that also enforce the supply effort expected. Furthermore, we have very vague ideas about what it means to be competent. Research, unfortunately, has not been very helpful. Economics, and labour market theory in particular, guided by human capital theory, for long have been uninterested in human competence *in a labour market matching context*. In fact, very little in the form of systematically documented knowledge on the economics of human knowledge accumulation exists. This is surprising considering the large resources spent on education in the industrialized countries.

Formulating the problem like this, however, also means that we implicitly recognize that education and training will not be capable of solving the European unemployment problem alone and that we do no longer believe that unemployment will go away if we accept more inflation. Since it won't be socially and politically acceptable to let wage adjustment reduce European unemployment, the only remaining solution is to change the institu-

tions of the European labour markets to facilitate, not hinder an increasingly complex matching problem. To achieve that school and the labour market have to be brought together at the micro level.

Heterogeneity and labour market efficiency

Matching in the labour market is a resource-using process, and resource use increases the more heterogeneous human capital and job specifications. Hence, the more advanced production technology the more important the organization of the path from school into the labour market and the higher the demands on the matching institutions in the markets for competence. This explains why *school is increasingly becoming a path into the labour market*. But to organize itself efficiently for the new, small scale and human capital intensive production that will replace machines and factory organization of work as the dominant production form also requires that the dominant *standard contract*, the *wage earners contract* be abandoned in favor of a work organization that is much more conducive to the education and on-the-job training that is critical for individual as well as industrial and economic performance. The reason will not only be that labour has to acquire new knowledge or learn new skills, but that education, notably its later vocational stages, becomes an integrated part of the signalling and incentive systems in the labour market that contribute to the efficient matching of competencies and jobs. When seen in this perspective it becomes obvious that *a badly organized labour market may make even the best educational and training system ineffective*.

Education as an investment or a sorting device

All analysis of education is frustrated by the classical problem of distinguishing between education as an *investment* in human capital and as a *filter* that sorts individuals according to original talent (Arrow 1973, Stiglitz 1972, Spence 1973).



This problem is formidable and according to some without a scientific solution. Hence, arguments tend to be 100 percent for or 100 percent against (Griliches 1988) education as a filter. The truth of course, is somewhere in between, but exactly where nobody can tell on objective grounds, even though it may be possible by modern econometric techniques to sort out the relative influence of family social capital and education (Kazamaki Ottersten, Mellander, Meyerson and Nilson 1994). The problem, in this context, is that the more important the filter function of education, and the less important the investment side, the more reliance has to be placed on the individual and the institutions of the labour market when it comes to solving both the individual's social problems and the growth and unemployment problems of the economy.

Above all, *policy advice depends entirely on what one assumes about the relative importance of education as a filter and as an investment*. The filtering of talent being the most important function of education, the less of education and training is needed, and vice versa. In fact, if education has exercised more influence as a filter of original talent than as an educational institution both the school and the training institutions ought to be reorganized. The functions of the labour market, furthermore, gain in importance over education, since identification of competence, talent and aptitude is the prime matching function of the labour market. The problem, however, is that research has been unable to come up with much more than assumption and argument on this critical balancing issue.

The labour market contract

What research may not be able to reveal, the individual and the employer are trying to figure out in the matching process of the labour market. What is more important than research, therefore, is the problem of writing effective labour market contracts that provide the right incentives for labour to perform and to reveal their competencies, and promote flexibility. Each industrial structure has its particular optimal contract forms. Over the past century or so the *standard wage*

earner's contract, suitable for large-scale factory production with a limited need for flexibly available human competence has come to dominate the labour market of industrial nations. This may, however, not be the right contract technology for the future industrial environment of successful industrial nations, demanding more flexibility in specification at the expense of the scale economies associated with standard contracts. This problem surfaces both when the young people enter the labour market, and, more importantly for the future, when workers lose their jobs and have to engage in the job competence matching process a second time.

If flexible labour market contracts are not allowed the art of advance filtering for competence and talent becomes a critical device for the employer. Different *signals* or indicators are used to spot low-ability workers in advance, since employers do not want to risk hiring low-ability workers (so-called lemons; see Greenwald 1986) on a long-term contract. This is the reason why employers tend to look at new recruits as inspection goods, to use Hirschleifer's term (1971) whose performance they monitor for considerable time before they offer a permanent job contract. If labour market law and regulation do not allow for such flexibility in contract formulation, unemployment will run correspondingly higher. This is one important reason¹ for the difference in unemployment performance between the US and Europe in Figure 1. But these negative effects are not fairly shared. A low level of information in the labour market lowers its efficiency and paradoxically hurts the low-ability workers most. At a lower information level a larger number remains longer on the employer's "inspection list". With an artificially lowered matching efficiency fewer low-ability workers find the smaller number of jobs that may fit them.

Demands on education and secondary trading in human competence

Besides the disadvantaged worker and the young new entrant, the most exposed individual is the unemployed looking for a new job in the labour market. He or

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¹Another is the generous unemployment benefit systems compared to those in the U.S., which sometimes makes it privately unprofitable in the short run to take a job. The so-called reservation wage that the worker compares with his wage offer is too high in Europe, often making him prefer to stay on welfare. From a training and competence development point of view such a situation spells disaster for the young workers.



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the labour market risk incurred by free and flexible contracting "... means that substitute insurance arrangements will have to be devised."

government has an important role to provide insurance of last resort, as "... there will be workers who will be unable to pay for the premia needed to cover their labour market risks."

she is stigmatized by the very fact that he or she has become unemployed, signalling, on the basis of widely known experience, that the employer has laid off his bad workers first. He may also suffer from the additional stigma problem, often associated with Government-operated vocational training and placement programs with a record of being populated by the most difficult cases. Again if signalling and filtering is what matters rather than training as an investment in skills, this stigma signal may become dominant, making even good vocational training programs ineffective. Contract designs in the labour market offering flexibility therefore become increasingly important to reduce unemployment. The standard wage earners contract with restrictive lay-off possibilities after a short period of employment may therefore have negative effects on employment in times of rapid structural change and labour market turbulence. A more flexible contract type, on the other hand, which takes in some of the freelance or self-employment features so common among professionals may do wonders in the market.

An increasingly abstract job environment requires more academic skills. Abstract thinking and problem-solving capacity matter more and more on many jobs (Eliasson 1992a). Even so, intellectual educational demands at school or on jobs when entering the job market, will never be prohibitive for a normal person (see Kazamaki Ottersten 1994). Two complicating factors, however, enter the picture. The future, more dynamic small-scale industrial environment will mean that no individual worker can count on holding the same job for his or her lifetime. The probability that he or she will be in the job market looking for a new job will increase. On that occasion competence demands on the now 35-year old individual will be much higher than at new recruitment. An individual who has not managed his or her continuous education on-the-job will be seriously handicapped and his or her intellectual retooling problem may be prohibitively difficult. Therefore arrangements like the individual educational investment account that I have discussed in a separate article (in this issue of the journal) will have to become a critical part of future social insurance systems, especially in allowing individuals to take

initiatives and to finance competence development ahead of a deteriorating job-market situation.

The second problem refers to education per se and the job market entrance. For a normally talented student who has performed normally at school there should be no problem. Schooling, as well as on-the-job learning is a cumulative process that steadily upgrades the capacity to learn more. Bad performance at earlier stages of school therefore will mean the cumulative development of a handicap in those communication skills that are necessary as a platform for continued learning. For students who fall into this trap the job-market entrance may mean prohibitive demands. To prevent this, discipline at school has to be enforced and incentives to pursue individual competence development have to be strong. This, of course, is largely a matter of compensation for skills and competence.

Economic progress means organizational change and requires efficient social insurance

Free and flexible contracting in the labour market cause two types of problems. *First*, the individual will be at great risk with a contract that allows speedy lay offs without motivation. This means that substitute insurance arrangements will have to be devised. *Second*, while such an insurance market will be perfectly feasible for the normal worker, there will be workers who will be unable to pay for the premia needed to cover their labour market risks. Here, of course, Government has an important role to provide insurance of last resort. There is, however, no rational foundation for Government to take over, and monopolize the entire labour insurance market. Evidence and experience would rather suggest the opposite.

The difficulties confronting labour market life among the rich industrial nations are that politicians have been unwilling to stigmatize the bad labour market risks, and aimed for comprehensive insurance in combination with labour market legislation, forcing employers to become complementary insurance providers through



job guarantees. Besides decreasing labour market efficiency and increasing direct and indirect insurance costs this arrangement has very unfair distributional effects in periods of rapid technological and structural changes like the past two decades. Insiders holding jobs will be protected while outsiders (young people and unemployed) will be badly treated (Lindbeck and Snower 1988). The value of the job guarantee is very high in the large successful corporation, while it is

close to nil in the small firm in financial distress. Apparently job security legislation causes both higher unemployment and significantly increased long-term unemployment (an OECD study shows). These are examples of the indirect effects of labour market policies, discussed in Per Skedinger's article (in this issue), that may together have cancelled the positive effects of labour market policy, and even made the net effect negative.

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