The European Commission
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Improving Human Research Potential
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Shifting skills and wages

Context of the Research

The distribution of skills and wages in the workforce is changing across developed countries with virtually every advanced country experiencing a significant increase in the proportion of employment for skilled workers and a decrease in the share of employment for unskilled workers. Countries like the USA and UK have experienced an increase in wage inequality, whilst other European countries and Japan have not, although their unemployment level has risen, especially amongst the less skilled.

Skilled biased technical change, globalisation and the associated enhanced competition from low wage countries have been competing explanations for these changes, yet far less attention has been paid to the processes affecting the supply of skills. Although skill biased technical change may help explain why all countries have seen a shift in the composition of employment, it cannot explain why, if all countries have been subject to common technological shocks, the change in the pattern of wages has been so varied across different countries.

An analysis of the supply of skills is necessary for a coherent explanation of these observed changes. The project brought together the expertise of a number of European economists from diverse methodological backgrounds to better understand the mechanisms underlying the changing distribution of earnings and processes, driving technical progress and skill accumulation.

Key Conclusions

The following conclusions were drawn from the project: -

1. Substantial differences in terms of earnings and unemployment patterns of inequality were found across the US, UK, Germany, France, Italy and Greece, suggesting that idiosyncratic features of each country's educational and labour market institutions have had a major effect in shaping the effects of technical progress and increasing the supply of skilled labour.

2. The increased demand for a better-qualified workforce is highly responsive to the existing supply of skills.

3. Such an increase in demand appears to require a number of simultaneous organisational changes that allow firms to exploit the synergies between human

capital and new technologies. The intensity of training can also be associated to these types of changes.

4. Most of these changes are found in the service sector and very specific industries within the manufacturing sector.

5. There is strong evidence that organisational change; technology and human capital are complementary assets of the modern enterprise.

6. There are increasing incentives for firms to either train their workers and/or demand an apprenticeship scheme.

7. In addition, firms benefit from hiring apprentices in terms of their pure current productivity, as in France and Germany where apprentices were able to substantially contribute to the productivity of the firm where they were training. This is particularly relevant for small firms.

8. Apprenticeships also have investment value for firms as the trainees learn firm-specific skills and offer privileged information about the trainee's productivity.

9. The decision to stay on in education after the compulsory schooling age is highly influenced by current labour market conditions, particularly unemployment.

10. Also, individuals appear to be responsive to the existing wage premium, which in the case of countries with short higher education courses is a good approximation to their own expected wage premium. This responsiveness is also shaped by the direct cost of additional education i.e. tuition fees and availability of student loans. In this context, the human capital investment incentives model explained UK data.

11. It is convenient to target separately research & development activities that are new to the market (new marketable products) and are new to the firm (implementing new processes).

12. A trade induced skill bias, although thought to have no significant effects, assumes contradictory features of international trade, i.e. most trade involves intermediate products within and not between industries. Evidence from France indicates that although the trade induced skill bias does not completely explain changes in unemployment and earnings, its effect is far from negligible.

13. A decrease in the educational standards required to enter higher education may lead to a higher degree of crowding out in the labour market for less skilled workers. Therefore credit-constrained individuals need targeting first when subsidising access to higher levels of education. Over-education at an individual level can also be consistent with a socially sub-optimal level of educational attainment.

14. The links between research & development/growth, skill/inequality and training within different firms and different economies can be explored using a simple model developed during the project.

15. Unions help wage compression by discouraging independent investment in human capital and encouraging firm-sponsored training. Therefore a period in which economic growth rates accelerate might lead to a reduction in the unionisation rates and thus increase inequality.

16. Minimum wages can lead to an overall improvement in the quality of jobs offered by firms without leading to a significant unemployment increase.

17. Publicly supported apprenticeship schemes can contribute to improved market efficiency. However, the beneficial effect of these policies must be traded off against their opportunity cost and the distortions they might generate in other sectors of the economy.

18. There are numerous possibilities for research that examine recent policy changes and evaluate simultaneously the associated costs and benefits.

Key Recommendations

1. Restrictions on the free flow of information regarding quality of skills and job's productivity, effort, etc. across participants in the labour market can lead to market failures. However, successful government intervention and institution design could lead the economy to the most preferable equilibrium.

2. Education/skills and training at a micro-level results in a more educated person needing less training, but at the macro level policies that generate a higher proportion of educated people can increase the amount of training that takes place by making the economy more innovative and raising the demand for training.

3. Policies targeted directly at raising the rate of return to research and development have the strongest effect on growth, but at the cost of increasing inequality.

4. Policies that lower training costs across the board will have an ambiguous effect on growth and could have a mild positive or negative effect, but seem to have little effect on inequality.

5. Policies that differentially reduce the training costs of the least skilled have little effect on growth and a small effect on reducing inequality.

6. Further research into comparative static predictions is necessary with particular emphasis on the skill composition and training of firm size and research and development, as there are very few robust comparative static predictions.

Further Information

Full title of study - “Growth, Inequality And Training ” (December 2001)

Full report, Abstract, Summary, Partner details

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