

PROCEEDINGS OF THE SYMPOSIUM ON  
**unemployment**



GOVERNMENT INSTITUTE FOR ECONOMIC RESEARCH



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EDITED BY:

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**ABSTRACT:** This VATT publication volume contains papers, comments and different policy recommendations presented in the symposium on unemployment held in Helsinki on 25 and 26 November 1993. The first day's presentation describes the Finnish unemployment problem compared to other countries. Seppo Leppänen considers unemployment in the OECD economies. Marek Góra characterizes the labour market in Poland. Tuire Santamäki-Vuori considers the causes, features and possible remedies of unemployment. Peder J. Pedersen describes the Danish experience of unemployment. Jaakko Pehkonen speaks about long-term unemployment. The health effects of unemployment are analysed by Eero Lahelma. The second day focuses on the issue of the functioning of the labour market. Tor Eriksson studies unemployment and the wage structure. The paper by Rita Asplund addresses industry wage differences in the context of human capital. Finally, the ongoing research on unemployment at VATT is presented, comprising papers by Antti Romppanen, Pekka Tossavainen, Juha Rantala, Mika Kuismanen and Marjo Pyy.

**KEY WORDS:** unemployment, persistent unemployment, labour market.

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**TIIVISTELMÄ:** VATTin 25. - 26.11.1993 järjestämässä symposiumissa tarkasteltiin Suomen työttömyysongelmaa uusimpien tutkimustulosten valossa sekä esitettiin toimenpidesuosituksia työttömyyden vähentämiseksi. Symposiumin ensimmäisenä päivänä Suomen työttömyysongelmaan tarkasteltiin kansainvälistä taustaa vasten. Seppo Leppänen tarkastelee työttömyyttä OECD-maissa. Marek Góra esittelee Puolan työmarkkinoita. Tuire Santamäki-Vuori arvioi työttömyyden syitä ja erityispiirteitä sekä tarvittavia toimenpiteitä. Peder J. Pedersen tarkastelee työttömyyttä Tanskan kokemusten valossa. Jaakko Pehkonen keskittyy pitkäaikaistyöttömyyden syihin. Työttömyyden vaikutuksia terveyteen arvioi Eero Lahelma. Symposiumin toinen päivä keskittyi työmarkkinoiden toimintaa koskevaan tutkimukseen. Tor Eriksson tarkastelee työttömyyttä ja palkkarakennetta. Rita Asplund tarkastelee palkkaeroja ja inhimillistä pääomaa. Symposiumin lopuksi esiteltiin VATTissa tehtävää työttömyystutkimusta.

**ASIASANAT:** työttömyys, työmarkkinat.



## **FOREWORD**

The Government Institute for Economic Research periodically arranges symposiums and workshops on current economic problems. Today, unemployment is a central problem in the Finnish economy. The purpose of this symposium was to present and discuss current research on the causes and consequences of the unemployment problem as well as different approaches to curing it. In order to share research results and experiences from other countries, foreign experts were invited to participate in the symposium. It is to be hoped that the material presented at the symposium will also provide valuable information for the policy recommendations of the subject.

On behalf of the Government Institute for Economic Research I wish to thank all the authors and participants at the symposium. I owe special thanks to research director Seppo Leppänen, research chief Tor Eriksson and researcher Pekka Tossavainen for their work as editors, and to Andrew Lightfoot for correcting the language of the paper and research secretary Helinä Silén for her indispensable work.

Helsinki, April 1994

Director General Reino Hjerppe



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## SUMMARY

The purpose of the symposium was to present and discuss research on the causes and consequences of persistent high unemployment and different remedies for it. The symposium comprised four different sessions. In the first session on November 25, the Finnish unemployment problem was described along with comparisons with other countries. The second session focused on long-term unemployment and the health effects of unemployment.

The third session held on 26 November focused on the wage structure and the functioning of the labour market. The reason why wages do not clear the labour market is important for understanding the persistence of unemployment. Moreover, research into wage differentials is essential in the discussion on promoting labour market flexibility. The final session presented the ongoing research on unemployment at VATT.

In his speech **Seppo Leppänen** touched upon the unemployment problems in the OECD countries. His presentation was based on the material of the ongoing OECD unemployment study. In that study emphasis is laid on the need for structural policy measures to fight the unemployment problem. According to Leppänen, rigidities in the labour market induce firms to employ as little labour as possible and to view technological advances mostly from this perspective. Wage flexibility, a supply of the requisite skills and venture capital ought to encourage enterprise creation and product innovation.

Leppänen stressed that economic recovery in the OECD countries is the prerequisite for better employment prospects in the OECD economies. Healthy growth prospects will be guaranteed by open and efficient product markets which will pave the way for high employment and high incomes by stimulating innovation. The best way to create high-productivity, high-wage jobs is to encourage competition, which by restricting monopolistic tendencies leads to a lower price level and increases output and employment.

The main role of macroeconomic policy has been to guarantee a stable, open and innovative environment for private sector activity. The main elements of the macroeconomic policy strategy adopted since the beginning of the 1980s have been the objectives of low inflation and sound public finances and a rigorous programme of structural reforms aimed at enhancing economic flexibility. Leppänen noted, however, that this strategy has produced rather disappointing results. Misjudgements about the effects of unexpected shocks and the underlying forces at work and the divergent macro policy mixes that have emerged since the early 1980s have given rise to increasing unemployment and large swings in exchange rates in the OECD countries.

In his comment **Eero Polus** focused on the employment intensity of economic growth. Polus pointed out that more efficient production resulting from increasing economic integration does not in itself ensure that higher levels of output are adequately

translated into new jobs. Thus, job creation depends not only on the rate of economic growth, but also on the employment intensity of that growth. In order to reduce unemployment, job creation should be promoted in labour-intensive sectors.

Polus reminded us that during the 1991-93 recession jobs were lost in almost every sector in most OECD countries twice as fast as they were created during the 1980s. Thus unemployment has tended to persist and steadily accumulate after each cyclical downturn over the past two decades in most OECD countries.

**Marek Góra's** paper centred on the labour market in Poland. Features common to the labour market in Poland and other countries in transition are low inflows and high unemployment duration. In Poland especially the impact of various institutional factors is very evident. One characteristic is that a large proportion of the outflow from unemployment flows is to "not in the labour force" (NLF) which is part of the process of the reduction of the labour force. According to Góra's estimates, roughly half of the total outflow from unemployment to NLF consists of discouraged workers, who leave the labour market in the belief that they will never again find a job.

According to Góra, the term "hiring" is much more apt in Poland than that of "matching" in characterizing the process of job-finding. In addition, the hiring process is slowed down by the benefit/minimum wage ratio, which in many cases creates a disincentive to seeking a new job. Góra argued that the relatively high level of the reservation wage gives rise to a classical component of unemployment. Góra also mentioned that a proportion of the voluntarily unemployed may actually be employed in the shadow or "grey" economy.

In her comment, **Merja Tekoniemi** pointed to the relatively large proportion of discouraged workers. Although the total of such workers may be low in real terms, it is hard to predict whether it is going to grow. Therefore, she stressed that it is important not to neglect the group of discouraged workers. In addition, Tekoniemi raised the question of the shadow economy. She asked what the effect on official unemployment would be if the shadow economy could be at least partly "brought out".

In her presentation, **Tuire Santamäki-Vuori** argued that urgent policy measures should be taken in order to prevent high unemployment from becoming persistent. Policies based on structural reforms to the labour market, which attribute a considerable part of the current unemployment problem to rigidities in the functioning of the labour market, do not take any account of the differences in the nature of the unemployment problem between Finland and continental European countries, where high and persistent unemployment has prevailed since the early eighties. If flexibility is to be a real factor, it must be enshrined within stable social institutions, giving rise to structural flexibility, as in Japan. Without such a structure, she proposed, flexibility can be economically disruptive.

Santamäki-Vuori pointed out that the key goal of economic policy should be - as a result of the balancing the current account - to increase domestic demand. Besides a determined lowering of interest rates and incomes settlements creating conditions

conducive to this, economic recovery should also be supported by fiscal measures. Active labour market policy plays a central role in affecting unemployment developments in the longer run.

She recognized that large budget deficits and rapidly rising levels of public indebtedness set a limit to public spending. However, she stressed that Finland should learn from the experiences of long-term unemployment in western European countries: it is obvious that the revival in economic activity will not arrive in time to solve the problem of long-term unemployment. Thus, more targetted policy measures are needed: counselling, training and the provision of temporary jobs.

According to Santamäki-Vuori, the issue is whether it is possible to develop strategies which both reduce unemployment in the short run and enhance human resources in the long run. Rather than concealing and spreading out unemployment into a more even layer of hidden unemployment, work-sharing measures based on retraining, adult education and job rotation would promote job opportunities and also serve the primary goal of enhancing human resources in the long run.

In his presentation, **Peder J. Pedersen's** asked what can be learned from the long period of high unemployment in Denmark. The first point, which is supported by studies, is the importance of avoiding a cyclical increase in unemployment becoming permanent. If fiscal or monetary policy cannot be used to reverse a cyclical increase in unemployment, selective labour market policies in one form or another should be used to interrupt lengthening spells of unemployment before marginalization or expulsion from the effective labour supply occurs.

Pedersen also mentioned the need for incentives to prevent long-term unemployment. Incentives are important in the financing of unemployment benefits so as to make the costs of unemployment more visible to those who set wages. The study shows the importance of avoiding polarization in the labour market, i.e. a situation where people are distinctly either insiders or outsiders. Outsiders with a relatively low education and skill level have mostly become a "lost generation".

A crucial lesson from the Danish experience is the importance of education. Education functions not only as an instrument of selection, but also creates flexibility in the labour market, thereby reducing unemployment. A high minimum adult wage acts as an effective barrier to entry into the labour market to those with little or no education in a situation of depressed demand.

**Reija Lilja** regarded Pedersen's microeconomic study as valuable for understanding the mechanisms behind persistent unemployment, and hoped that in Finland we would learn from these proposals and not have to experience high rates of unemployment for many years. As in Pedersen's paper, Lilja also stressed the phenomenon of hysteresis in unemployment. If hysteresis is present, then it is not sufficient just to boost aggregate demand in order to reduce unemployment. In fact, policy measures targetted at those groups of the unemployed who are in less advantageous positions, such as the long-term unemployed, are required.

The purpose of **Ja kko Pehkonen's** study is to contribute to the literature on the determinants of long-term unemployment using aggregate time series data from the period 1970-1992. His time-series approach should be viewed as complementary to earlier micro-oriented studies. The starting point of his study is the observed correlation between the proportion of long-term unemployment and the overall level of unemployment.

The main findings are as follows. Firstly, the higher the aggregate unemployment rate, the higher the share of long-term unemployment. Secondly, the proportion of long-term unemployment is also affected by the coverage of the unemployment compensation system and by active labour market policies. Thirdly, the results do not support the hypothesis that the proportion of long-term unemployment is affected by the generosity of the unemployment compensation system. Fourthly, long-term unemployment can be reduced by policy measures which affect overall unemployment and by implementing measures specially targetted at the long-term unemployed. Pehkonen also doubted whether long-term unemployment could be tackled by macro-economic policies alone.

In his comment, **Pasi Holm** pointed out that, apart from Pehkonen's macro approach, studies focusing on long-term unemployment have mostly been micro-oriented. Therefore, he found Pehkonen's research valuable as this type of analysis is important for policy implications. However, Holm also noted that the direction of causality between long-term unemployment and total unemployment assumed in Pehkonen's study could be criticized; in literature they are usually treated as endogenous variables. He acknowledged that growing unemployment leads to long-term unemployment during a recession, but noted that long-term unemployment may also cause hysteresis. If the likelihood of outsiders (persons with long unemployment spells) finding a job is lower than that of insiders, wages would increase too fast in booms, thereby causing unemployment to remain at a higher level than before.

In his presentation, **Eero Lahelma** specified the pattern of the mental deprivation associated with unemployment and gave an overview of current evidence of the association between unemployment and mental health. Evidence shows that job loss is likely to cause mental ill-health among large numbers of unemployed people, whereas re-employment is likely to be followed by regained mental health. The evidence does not support popular views that unemployment is a major cause of unhealthy life styles, such as drinking. According to the studies reviewed by Lahelma, drinking stigmatizes jobseekers and prevents their re-employment, rather than unemployment causing drinking.

Evidence shows that unemployment does not enhance bad life styles and "does not kill", but does cause mental distress. Lahelma concluded his paper by stressing the importance of re-employment. Different initiatives aimed at activating the unemployed should therefore be considered, including sharing existing work.

**Osmo Kontula's** comment is based on two recent studies of the health impacts of unemployment in Finland. The results give support to Lahelma's results. The health

status of the unemployed is worse than others as estimated both by their physical and their mental health. The situation of the long-term unemployed is found to be especially difficult. Problems caused by unemployment are often exacerbated by a person's lack of social support. According to Kontula, unemployment has had immediate injurious impacts on the health of the unemployed. For many people, the fear of unemployment gives rise to adverse effects on health beginning even before the termination of employment. On the other hand, re-employment seems to quickly eliminate the adverse effects of unemployment.

In his study, Tor Eriksson look at the issue of wage flexibility by analysing the relative wages of different matching dimensions. The question is how far inflexible relative wages impede structural changes in employment. The findings suggest that the earlier trend of wage compression in the beginning of the 1980s followed by wage dispersion during the late 1980s has involved substantial changes in wage differentials across gender, age and educational groups. The decreases in the gender gap and in the return to schooling together with the increasing age effects make up the pay compression. Behind the recent increase in wage dispersion there are increases in all effects, but a very small effect for education. Egalitarian wage policies which were common in the 1970s seem to have had an independent role, too.

The findings suggest that inter-industry and regional wage differentials have remained remarkably stable during the two periods of pay compression and increased dispersion. According to Eriksson, inter-industry differences are to a large degree due to differences in productive characteristics, whereas regional differentials are not. Both types of differentials are highly persistent, but they are probably affected by industry- or region-specific labour market conditions.

In her presentation, Rita Asplund considers the relationship between industry wage differentials and human capital. Her findings suggest that nearly half of the wage dispersion observed in Finnish industries is attributable to differences in human capital in the labour force between different industries. Industries paying above-average wages are also generally high-pay industries after controlling for a broad set of personal and job characteristics. The findings imply that the overall variability in industry wages is somewhat higher in Finland than in the other Nordic countries, but still clearly lower than in the US. Thus the industry wage structure in the Nordic countries bears more resemblance to the competitive model of the labour market than the US industry wage structure does.

A more detailed examination of the development of relative wages between and within three categories of non-manual industry workers and five categories of manual industry workers indicates that there have been only marginal shifts in relative wages during the period 1980-92. Asplund considered this quite surprising in view of the dramatic changes that the Finnish economy has undergone during the past few years. Perhaps this finding can be taken as an indication of the relatively strong impact on wage-setting procedures in Finland: the highly centralized bargaining system combined with a high unionization rate.

In his comment, **J ri V iniomäki** stressed four different aspects of wage differentials from studies in other countries. Firstly, they cannot be explained by differences between industries in human capital and working conditions. Secondly, different countries seem to have fairly similar industry wage structures, so that they cannot be caused solely by country-specific labour market institutions or production structures. Thirdly, industry wage differentials seem to be persistent over long periods of time, so that they are not simply price signals for the required labour mobility to attain demand and supply equilibrium. Fourthly, industry wage premiums are similar for different occupation groups, which contradicts the compensating differentials explanation.

Vainionmäki concludes that although there may be large differences in the wage growth of some industries over shorter time periods, over the longer period there remains a fairly rigid wage structure, i.e. a tendency to revert to existing wage differentials.

In the final session of the symposium the ongoing research on unemployment and labour market at VATT was presented. The aim of **Antti Romppanen's** study is to explain differences in the job elasticities of national growth patterns in western European countries. In order to examine different explanations for wage differentials **Pekka Tossavainen** estimates standard earnings functions with and without controlling for personal and job characteristics and previously less studied variables, such as the indicator for the use of computers and variables based on the efficiency wage and insider-outsider considerations. The aim of **Juha Rantala's** study is to analyse the matching process in the labour market, inflows and outflows of jobseekers. **Mika Kuismanen** evaluates how changes in progressive income taxation affect the male labour supply. In her study, **Marjo Pyy** tackles youth unemployment in Finland: what kind of educational background causes long unemployment spells and how can those who have difficulty in finding jobs be identified?

## UNEMPLOYMENT IN THE OECD ECONOMIES<sup>1</sup>

by Seppo Leppänen, Government Institute for Economic Research

OECD unemployment has become a deeply rooted socio-economic problem which has multiple causes and wide-ranging consequences. Although in many ways the burden of unemployment falls on the individual, making it a micro issue, the implications of unemployment are also multidimensional - sectoral or macro issues. Unemployment affects long-term productivity, income distribution in society, social cohesion, integration and protectionist tendencies in the OECD economies.

The external shocks seen since the early 1970s appear to have been quite similar across the OECD countries: 1) oil shocks, 2) competition from low-wage countries, 3) the diffusion of information technology, 4) the ageing of the labour force, 5) inflation constraints on demand management and 6) the aftermath of the "bubble" economy are all examples of such shocks. However, in spite of the apparent similarities of the shocks there have been many country-specific elements. Finland is a case in point. There are also different economic and social value systems and social infrastructures causing different incentive mechanisms which in turn lead to rises and falls in unemployment. There have been and will continue to be different reactions to the shocks and the correcting measures between the OECD countries. Therefore it is no wonder that labour market performance and notably the trend rise in unemployment and long-term unemployment have been quite different in different countries.

### What has happened?

Total OECD unemployment increased markedly between the mid-1960s and the early 1980s, rising from a rate of 2.5 % in 1966 to a peak of 8.6 % in 1983 (Chart 1). Most of the overall increase occurred in the aftermath of the two oil price shocks in 1974 and 1979. It declined somewhat through the late 1980s, but since 1991 it has been rising again. The average number of persons unemployed reached more than 35 million, a new record, by the end of 1993.

Rising unemployment in the 1970s and 1980s coincided with an increase in the OECD labour force. Differences between countries are pronounced, both in terms of trends and levels of unemployment and labour force participation. As a general rule, participation rates rose less, or even fell, when and where unemployment rose. EC and

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<sup>1</sup> This presentation is based mainly on the work done in the OECD employment/unemployment study up to the end of November 1993 (See OECD (1993a-f), Elmeskov, J. and Pichelman, K. (1993), Calmfors, L. (1993), Schwane, P. (1993)) The mandate for that study was given to the secretary general by the annual council meeting of OECD ministers in June 1992. The employment/unemployment study is highly important for the future of the OECD as a credible international organization. If employment prospects do not improve, protectionist tendencies will inevitably become much more forceful than they are at present.

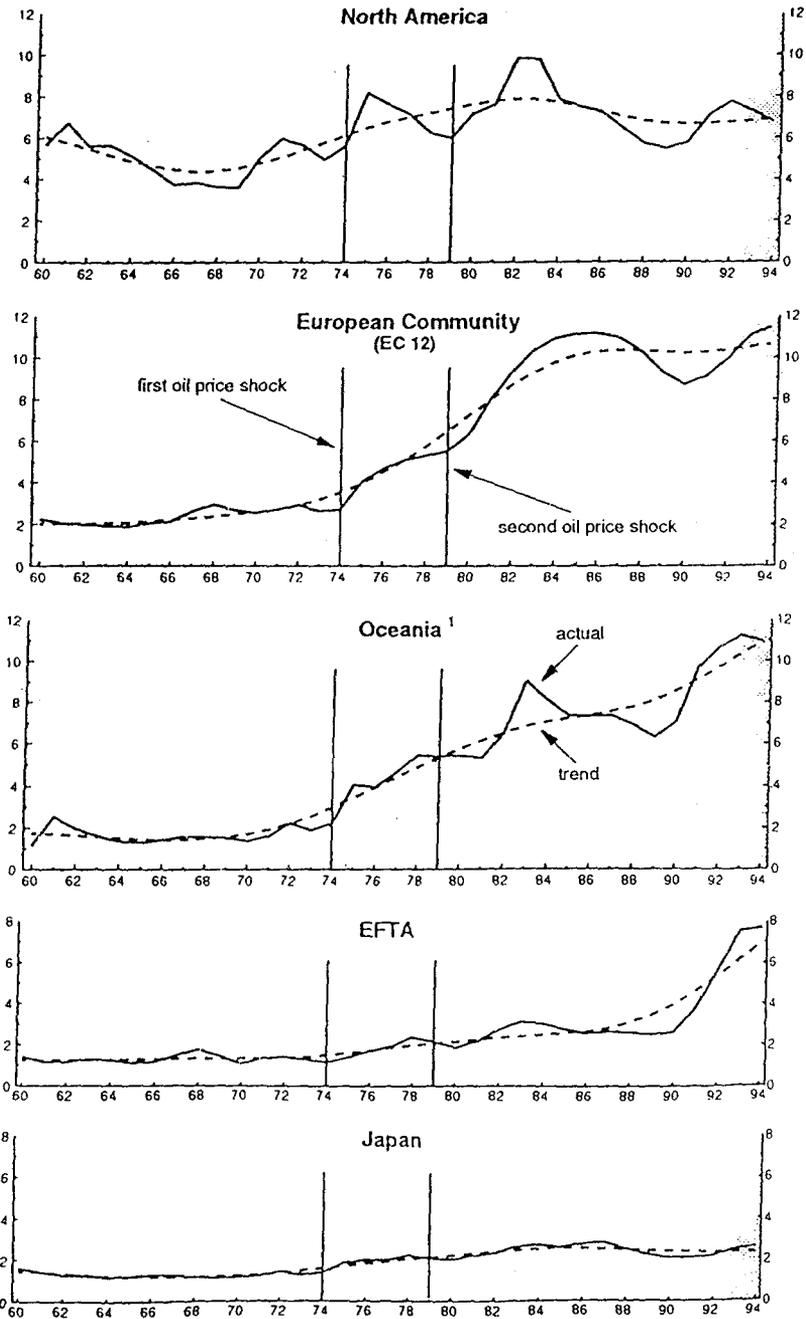
Oceania and also many EFTA countries hold the record, but Japan and North America have lower and declining levels.

Since 1960 employment growth has almost doubled in North America and Oceania (Chart 2), whereas in the EC and the EFTA countries it has stayed at the same level. Japan is in between these two extremes. Since 1970 and 1993 production in the EC and North America has grown at the same rate, 1.75 times. In North America that production growth has been achieved with an employment level 1.5 times as high as in 1970, but in the EC the level of employment has remained the same as in 1970 (Chart 3).

Job growth in the US and in Japan has taken place largely in the private sector (Chart 4). Employment growth in the European Community and especially in the EFTA countries since early 1970s has mainly been in the non-commercial public sector. Up to the mid-1980s, more than all of the growth in total employment in the EC took place in the non-commercial public sector. A long-term shift in the composition of employment, from manufacturing to services, has occurred in all OECD countries.

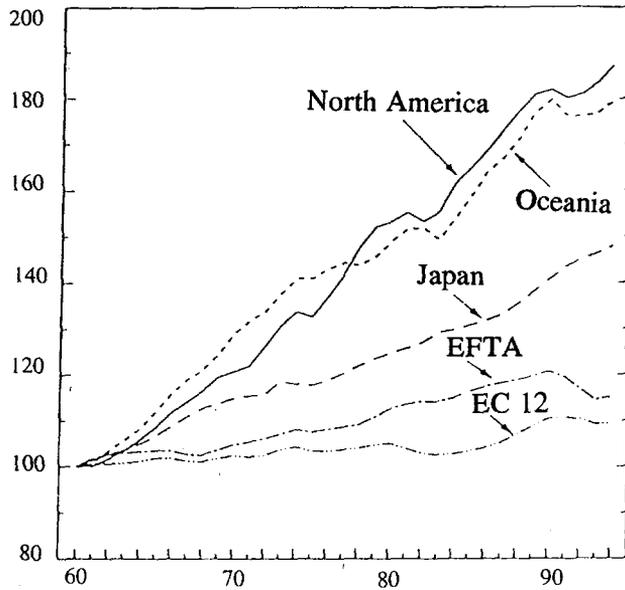
In the United States wage differentials also increased particularly markedly, where the real hourly wages of low-skilled young men have actually fallen - by around 20 % over the past ten years. In most EC countries the widening in wage differentials was very slight or non-existent in the 1980s (OECD, 1993d). In the last ten years, therefore, the US has experienced high employment growth, low productivity growth and low work motivation, especially among low-skilled workers, widening wage differentials, reasonable unemployment performance and the creation of a larger class of the "working poor". In Europe, on the other hand, there has been insignificant employment growth, relatively good productivity growth, almost unchanged wage differentials, high and gradually increasing unemployment, a relatively high minimum wage - whether by law or by collective bargaining - and instead of the working poor, unskilled workers are unemployed. In Europe it is difficult for young people to gain a foothold in employment. Public expenditure is also rather high. So the situation both in the US and Europe is far from acceptable.

Chart 1. Unemployment rates in OECD regions, 1960 - 94, per cent (OECD projections in shaded area)



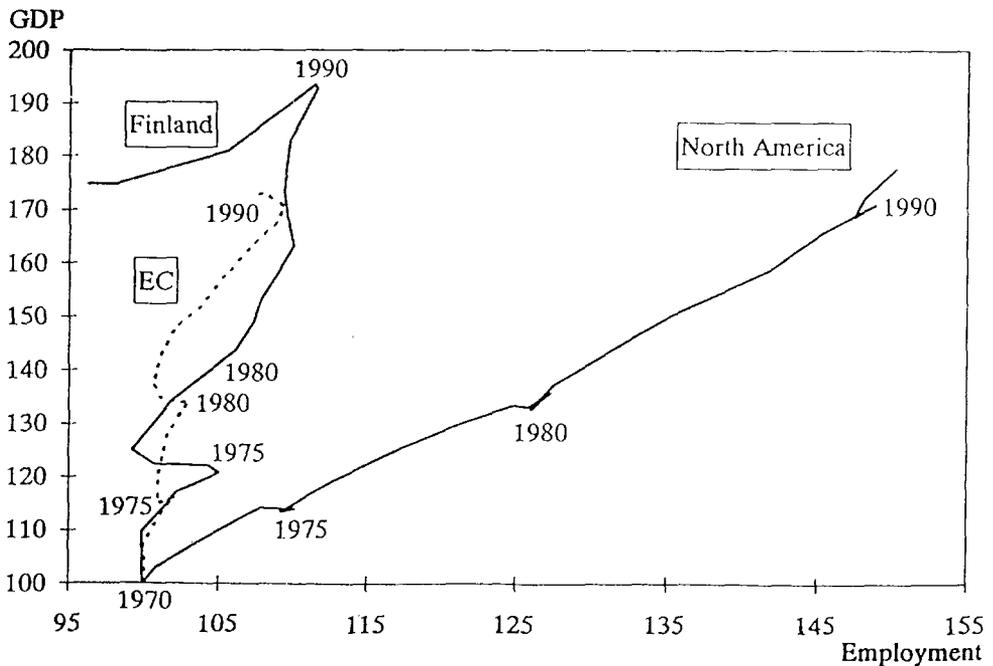
1. For all charts, Oceania refers to Australia and New Zealand.  
Source: OECD.

**Chart 2. Employment growth in OECD regions, 1960 - 94, Index 1960 = 100 (OECD projections in shaded area)**

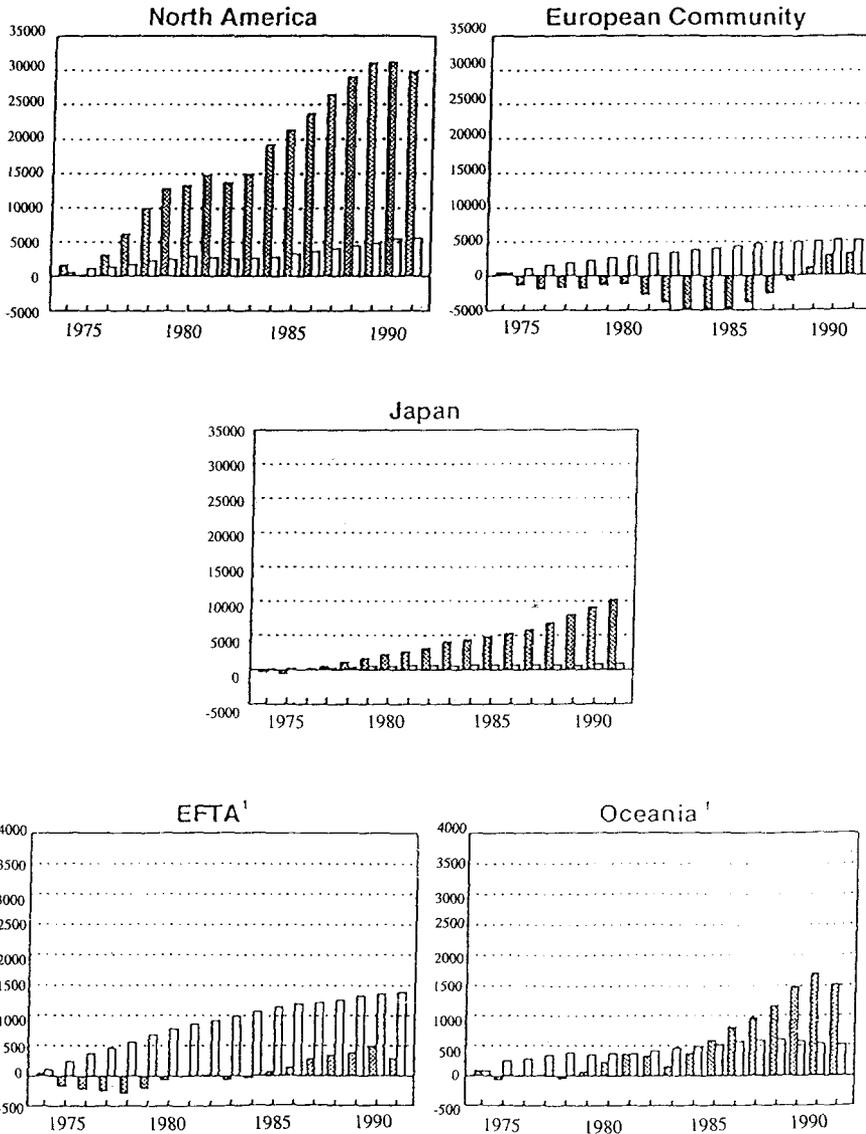


Source: OECD

**Chart 3. Production and Employment in EC, North America and Finland 1970 - 93, Ind (1970) = 100**



**Chart 4. Cumulative employment growth in the public and private sectors  
(change in thousands since 1973)**



Notes:

1. The scale for EFTA and Oceania is higher than that for North America, the European Community and Japan by a factor of 10.

Source: OECD



## **Macroeconomic or structural policy?**

The seriousness of the problem is recognized in all the OECD countries. During the recent recession job losses among low-skilled workers have occurred not only in manufacturing but also in the service sector. Youth unemployment and unemployment among elderly workers, usually of a long-term nature, have made the situation worse than in earlier recessions. The picture between the different OECD countries has also become more diversified than before.

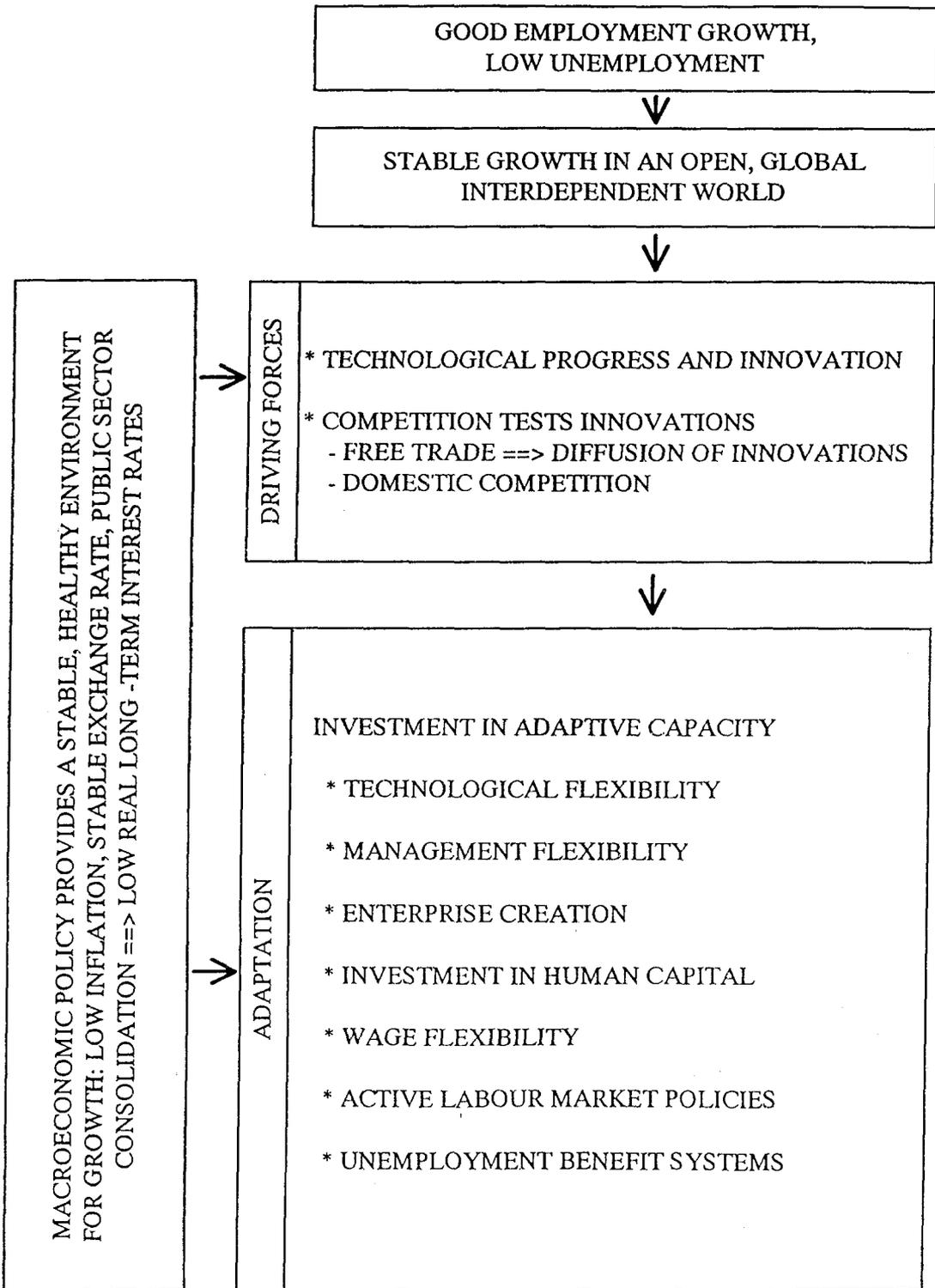
Economists are divided as to whether the present unemployment problem is cyclical or structural in nature. If the problem is more structural in nature, traditional tools of demand management are not wholly applicable. Another point to bear in mind is that economic policy prescriptions may be available, but they may not be socially or politically acceptable.

Economists have long attempted to quantify the rate of structural unemployment and to establish whether there is a tendency for this rate to shift over time (hysteresis) or, conversely, whether there is a built-in tendency of economies to return to an equilibrium or so-called "natural" rate of unemployment. Such estimates have direct relevance for policy because they limit the scope for demand management in reducing cyclical unemployment, i.e. the scope beyond which reflationary steps would accelerate wage inflation. Macroeconomic policy can only influence the cyclical element of unemployment.

The trade-off between unemployment and inflation has also retained its position in much of the economic policy debate. Some years after the first oil shock the economic policy strategy of the OECD countries was "to build a bridge over the bad years" or to pursue "a conveyer" strategy or to make "concerted actions" by fiscal stimulus to prevent the unemployment rate rising. Unemployment in the 1970s was thought to be mainly cyclical in nature. However, the result of that policy was accelerating inflation and unemployment and public sector indebtedness. The liberalization of the financial markets which happened in all the OECD economies in the 1980s also changed the rules of the game in macroeconomic policy. The conclusion was that there must be some malfunctions in the working of economies: in resource allocation, the growing welfare state, wage formation and the functioning of the labour market, etc.

Since the end of the 1970s, the mainstream of macroeconomic policy in the OECD countries has aimed at creating a healthy, stable and predictable economic environment for private sector decision-making. So the general conclusion of the policy debate among policy makers seems to be that the structural elements of unemployment are rather strong and that sustainable improvements in employment can only be brought about by structural policy measures. This kind of thinking is also behind the OECD employment/unemployment study (Chart 5). Structural policy measures have aimed at improving the functioning of the market. The main target has been to keep interest rates low. The pressure for competition has been great.

Chart 5. The general structure of the OECD employment/unemployment study



The assumption of perfect competition was often accepted as a natural starting point of economic policy.

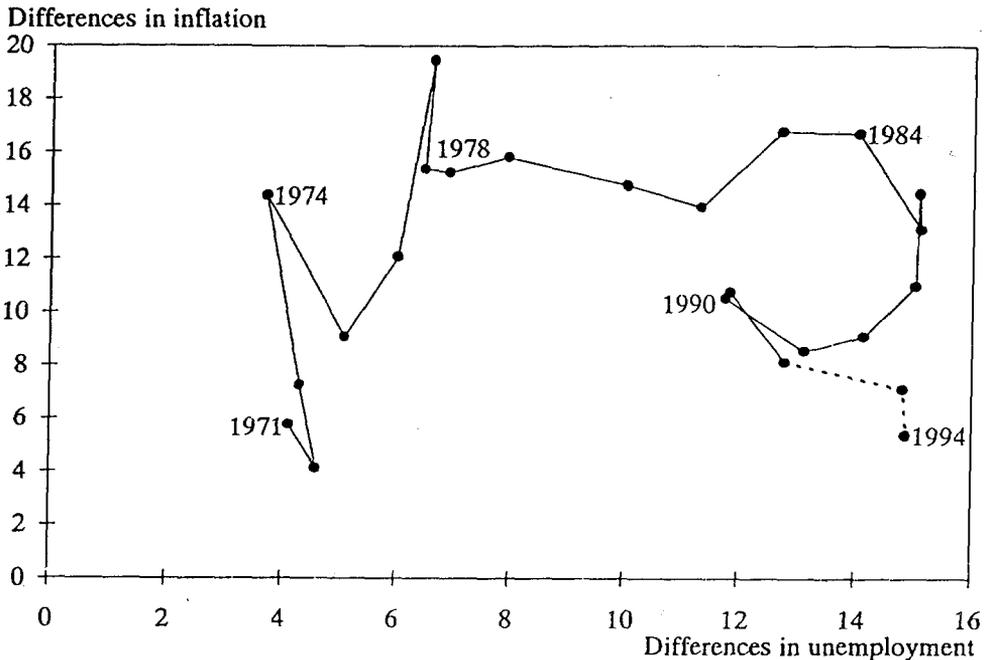
For the remainder of the 1990s, a medium-term target in the majority of countries will be to reduce structural budget deficits while allowing automatic stabilizing factors to take effect in the near term. Fiscal consolidation is expected to lead to a reduction in long-term interest rates and a restoration of confidence in potential investors and savers. Renewed economic growth should then improve the labour market situation. Whether there is room for more policy activism within this general framework depends crucially on the above constraints (Schwanse, 1993).

Differences in unemployment and inflation in western European countries may explain whether there are divergences between different countries caused by external shocks or changes in policy regimes (Chart 6). If there have been widening differences in unemployment or inflation between the western European countries due to external shocks and changes in policy regimes, then there may have been some structural differences in product and labour markets which have differentiated the adjustment process. During the "bridge-building" period in the 1970s there were remarkable divergences in inflation performance until 1977. In the first years of the "inflation first" strategy in 1978-1984, performance in terms of inflation and unemployment differed widely. During the latter half of the 1980s differences in inflation performance were beginning to narrow but differences in unemployment remained high. After the turbulences in the foreign exchange markets in 1992 and 1993 it might be expected that differences in inflation will widen whilst unemployment differences narrow.

Looking back at economic development since the end of the 1970s, it seems to be clear that the adjustment processes caused by the external shocks and changes in policy regimes have been much longer than anticipated. High and persistent unemployment may exacerbate the structural elements of the unemployment problem. Will there be any tendency at all towards reasonable equilibrium or is there an equilibrium with high unemployment as a basic feature in spite of reasonable growth performance?

In the last few years, however, there has been some scepticism as to feasibility of bringing about the structural changes hoped for and the effects of the structural policy measures. Structural unemployment is due to many factors other than rigidities in the labour market. The working of price mechanisms is far from perfect, even though many policy measures were planned as if competition were perfect. Bearing in mind the changes in the economic environment, especially the liberalization of the financial markets, technological change and competition caused by the new dynamic economies, the unemployment problem has been worse in those countries where macro and structural economic policy have not taken into account the changes in the rules of the game.

**Chart 6. Differences in unemployment and inflation in the western European economies in 1971 - 1994, percentage point. (Differences in the averages of three highest and lowest unemployment and inflation rate.)**



### The pressure of continuous structural change

The need for structural policy measures is self-evident in spite of whether demand management policy is effective or not. First, the ageing of the labour force in virtually all OECD countries over the coming decades will weaken the responsiveness of the labour supply because the inflow of young people, through which the reallocation of labour from shrinking to growing activities normally takes place, will become significantly smaller. Second, the adjustment requirements of domestic labour markets will continue to rise because of stiffer international competition and the rapidly changing global economy (OECD, 1993a).

The external pressure of growing competition in manufacturing from low-wage countries has been an important source of job losses in OECD countries. The supply of labour which is available at low wages outside the OECD area is almost unlimited and its quality tends to rise due improved education. The pressure of international competition is felt not only through trade links, but also through direct foreign investment. The effects of this globalization have led to a rapid relative and absolute fall in the wages of low-skilled workers, thereby cushioning their unemployment rates. In Europe, downward wage adjustments have been resisted, with the result that the same forces of international competition have instead created high unemployment

among the low-skilled. The effects of this development have not yet been substantial because of job gains in high-skilled areas (OECD, 1993d).

This development is accompanied by continuous technological change which affects the labour market via the development and diffusion of new products and the introduction and diffusion of new production processes. Thus technology destroys old jobs, but creates new ones.

Open and efficient product markets make possible high employment and high incomes, firstly by stimulating innovation, competition and encouraging the creation of high-productivity and hence high-wage jobs. Secondly, by restricting monopolistic tendencies, it leads to lower prices and thereby increases output and employment.

International trade allows economies to reap the advantages of specialization and transmitting the forces of competition and innovation. Enterprises which lead in the innovation and diffusion of products and/or processes also tend to lead in export performance.

There is a close link between the job creation of technological change and the flexibility of product and factor markets. This is most evident as regards process innovation versus product innovation. Overregulated and overprotected labour markets induce firms to use as little labour as possible and to view technological advances mostly from this perspective. Wage flexibility and a supply of the requisite skills and venture capital encourage enterprise creation and product innovation. The opportunities of technological change will thus be exploited in an expansionary job-creating manner rather than a protective labour-saving manner.

It should be stressed, however, that job opportunities must not be confused with actual jobs. These opportunities will not materialize automatically but only if the surrounding economic conditions are right. It is possible to have job destruction without job creation or more of the former and less of the latter, with the result that unemployment will continue to rise.

### **Investment in adaptive capacity**

The term "adaptive capacity" used in the OECD employment/unemployment study comprises the following elements: technological flexibility, management flexibility, enterprise creation, investment in human capital, wage flexibility, active labour market policies and benefit reforms (See Chart 5).

**Technological flexibility** refers to the adaptation of production capacity to respond as well as possible to changing demand. Existing capacity is used to make as many different final products as possible. Economies with high technological flexibility also feature a high substitution of production capacity (putty-putty technology). In recent history one example is the flexible manufacturing system, which has become

especially common in the metal industry. If the capital stock is very capital-intensive it may be expected that the technological flexibility is not very good.

**Management flexibility.** The need for labour market flexibility in a narrow sense has heaped the cost of adjustment on the labour force alone, and has thereby neglected the equally urgent need for management flexibility (Schwanse, 1993). If rent-seeking prevails in product markets and is not contested by newcomers, for instance, wage reductions will not lead to lower prices and higher labour demand, but rather will only boost monopoly rent. Similarly, downward wage flexibility and a highly mobile labour force may be necessary, but will certainly not be a sufficient condition for seizing new job opportunities arising from technological change. These developments need to be matched by flexible management structures, with a strong element of entrepreneurship and risk-taking on the part of the holders of capital. Europe's problems go deeper than labour market flexibility, too little private initiative and management dynamism. One very relevant reason behind the heavy recession in Finland in the 1990s may be considered to be a shortage of management flexibility; short-sightedness in assessments of the markets (reliance on Soviet exports), one-sided production structures and inflation expectations and reliance on exchange rate policy (devaluation) by management.

Flexible specialization is a key word, implying flatter management hierarchies, greater internal mobility between tasks, reduced job boundaries, improved job design, and training and re-training to develop multi-skilling.

**Enterprise creation.** Policies which stimulate or remove disincentives to the creation of private enterprises. Thus, risk-taking entrepreneurs will search for and exploit market niches or offer new products in the expectation that effective demand will be forthcoming. Macroeconomic conditions and hence government policies which affect the cyclical performance of the economy will mainly determine the expansion, contraction and closure of existing firms. Microeconomic conditions and structural policies will strongly influence the creation of new enterprises and hence job creation (Schwanse, 1993).

One course of action is to create or foster an entrepreneurial culture. There are large differences between OECD countries in the rate of firm start-ups. Attitudes towards entrepreneurship can be influenced by appropriate strategies of governments. The removal of imperfections in capital markets and the development of well-functioning markets for risked venture capital are appropriate policy responses. Encouraging of small high-tech firms could be one policy line in this regard.

**Investment in human capital.** Human capital is of crucial importance for the process of structural change and economic performance generally. Better qualified human capital is more generally adaptable to different tasks. Enterprise-based training is likely to be more appropriate because of the combined effects of the forces of structural change: globalization and new technologies are affecting labour demand and the ageing of the labour force is affecting labour supply.

Apprenticeship training is considered by comparative studies to be rather effective because it is practical in nature and the transition problems from training to work are very small. One of the greatest challenges in the OECD economies is how to step up industrial training for adults (OECD, 1993a).

**Wage flexibility.** In Europe, sluggish downward flexibility in wages and thereby the lack of any major self-correcting mechanisms to combat unemployment is one of the great puzzles facing economists. One of the possible underlying causes is the build-up of welfare provisions, which have increased reservation wages. Wage flexibility concerns both the response of wages to unemployment and relative competitiveness between different industries and firms.

**Active labour market policies.** The aim of active labour market policies is to improve the regional and occupational mobility of the labour force. Workers who lose their job and have difficulties in finding a new one are assisted by public policy to acquire the necessary skills and attitudes to become re-employed. State employment agencies and training for the unemployed are examples of this kind of policy.

**Unemployment benefit systems.** How much of the burden of unemployment should be carried by the individual, and how much by the community, involves a judgment which has varied over time and between countries. Unemployment benefit systems include substantial incentives for the worker to seek and take a new job.

## **OECD strategy for boosting employment and reducing unemployment without increasing inflation (OECD, 1993d)**

1. Macroeconomic policy, and in particular its role in providing a stable framework for private-sector decision making.
2. Development and diffusion of technological change, as the principal source of new skill-intensive jobs.
3. National and international competition as a principal mechanism for encouraging the development, introduction and diffusion of new technologies.
4. Wage and price flexibility as a means of widening job opportunities.
5. Human resource development as an important way of strengthening the growth of economic potential; and to equip people to fill high-productivity, high-wage jobs.
6. Active labour market policies to facilitate the adjustment process.
7. The encouragement of enterprise, in particular the creation of new firms or the transformation of existing ones, so as to benefit from new technological opportunities and provide jobs for those displaced from outdated activities.
8. Solidarity and policy coherence, so as to reconcile efficiency and equity in the adjustment process.

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## COMMENT

by Eero Polus, Ministry of Labour

The current employment situation in western industrial countries and in Europe in general is a source of growing concern. Over the past two or three years there has been a resurgence of unemployment, especially in the European economies. This has come as an unpleasant rebuff after the rise of employment in the boom period in the latter half of the 1980s.

The total number of unemployed persons in the member countries of the OECD is estimated to reach 36 million in 1994, of which some 19 million are in the European Union. These figures are equivalent to an unemployment rate of 8.5 % for the whole of the OECD and approximately 12 % for the European Union. Unemployment is expected to rise in Europe in 1994, but it will fall slightly in the United States with economic recovery. In contrast to Europe, unemployment has not been on a long-term upward trend in the United States.

Over 17 million people across the European Union are currently out of work. Almost half have been unemployed continuously for more than a year. The worst-hit countries are Spain, Ireland and, outside the Union, Finland, with unemployment rates close to 20 % or even above. Among the larger European countries both France and Germany are in the course of overtaking the United Kingdom in their unemployment rates. All three have unemployment rates over 10 %. Even Sweden, once a model of full employment, has an unemployment rate of over 7 %. The best performers now are the Alpine states, Switzerland and Austria, with unemployment rates between 4 and 5 % and Luxembourg with 2 % unemployment. In the United States the unemployment rate is currently 7 % and in 1994 it is expected to drop to 6.5 %.

Of course the picture of unemployment in Europe is incomplete if no mention is made of central and eastern European countries. In these economies the very notion of unemployment was unthinkable and concealed only a short time ago, but now with the transition to market economies the picture is changing rapidly. Unemployment has become a prevalent feature of all these countries, although the official unemployment rates may not fully reflect all the hardships of the transition phase.

In some European countries, including Finland, unemployment has reached a level where it could well start to snowball by setting in motion a negative multiplier effect. This vision has stimulated a heated discussion on whether some economies may be entering a free fall. Not only unemployment but also the fear of unemployment will have harmful effects on consumer demand and economic activity. In Keynesian terms "the animal spirits die away" in such situations because economic activity shrinks and people are not willing to put their assets into risky investments.

The slowdown in European economic growth dating back to the beginning of 1991 may yet prove to be a temporary setback in the improving trend seen in past decades.

In any case it seems almost certain that whatever the outcome is in terms of output growth, persistent unemployment will remain the major economic problem facing Europe throughout the 1990s. The reason for that is the current magnitude of the problem. Even if the employment growth seen in the second half of the 1980s were repeated it would still not provide enough jobs to reduce unemployment to acceptable levels and give work to significant numbers of people. For mass unemployment to be brought down by traditional economic growth, Europe would need a sustained above-trend cyclical upswing.

Increasing economic integration has helped lay the basis for more efficient European production. Yet while efficiency in production is important, it does not in itself ensure that higher levels of output are adequately translated into job creation. Job creation depends not only on the rate of economic growth, but also on the employment intensity of that growth. Employment intensity is determined on the one hand by the relative use of capital and labour, which gives the volume of work, and on the other by the way in which this volume is divided between numbers of jobs and hours of work. In order to reduce unemployment, the volume of work places per unit of economic growth needs to be increased and job creation promoted in labour-intensive sectors. Achieving this would entail reversing the current trend of diminishing employment intensity of growth.

Finland is an example of a country where economic growth has been linked to an unfavourable development in employment intensity. An international comparison shows that in the 1970s the employment intensity of economic growth in Finland was of the same order as in most other European countries (Figure 1). But since then it has deteriorated drastically, in particular in the beginning of the 1990s, and the result has been the steep rise in unemployment. It is worth noting that the country's position in Figure 1 is also affected by shifts in the structure of production and in the breakdown of employment according to full- and part-time work. In the Finnish case these shifts are not prime explanations of the decrease in the employment intensity of growth.

A comparison of the expansion period 1980-1989 and the recession phase 1989-1992 in Finland indicates that the employment intensity of growth is not a constant parameter of the production process but varies in accordance with economic activity (Figure 2). In a cyclical downturn employment falls approximately at the same rate as production. Thus in recession the ratio of the percentage loss of jobs to production is close to 1, which may be used as a measure of employment intensity. This ratio will hold true for the majority of business sectors.

In a period of growth there is less similarity in the rates of growth of employment and production. In most sectors, employment intensity measured as a ratio of the percentage change of jobs and production is well under 0.5 and even in the vicinity of zero.

A rule of thumb in almost every sector is that in the 1989-92 recession jobs were lost twice as fast as they were created in the 1980-89 expansion period. If this is also valid in a broader perspective and in the longer run, it may explain why unemployment has tended to persist and steadily accumulate in a superimposed manner after each

cyclical downturn over the past two decades in most OECD countries. This observation is merely the recognition of the problem. Active research is now needed in order to avoid a steady accumulation of unemployment. In that respect there are great expectations of the contribution of the employment/unemployment study currently under way in the OECD.

FIGURE 1. EMPLOYMENT PERFORMANCE OF ECONOMIC GROWTH IN EUROPEAN COUNTRIES IN THE PERIODS 1970 - 1981 AND 1981 - 1992

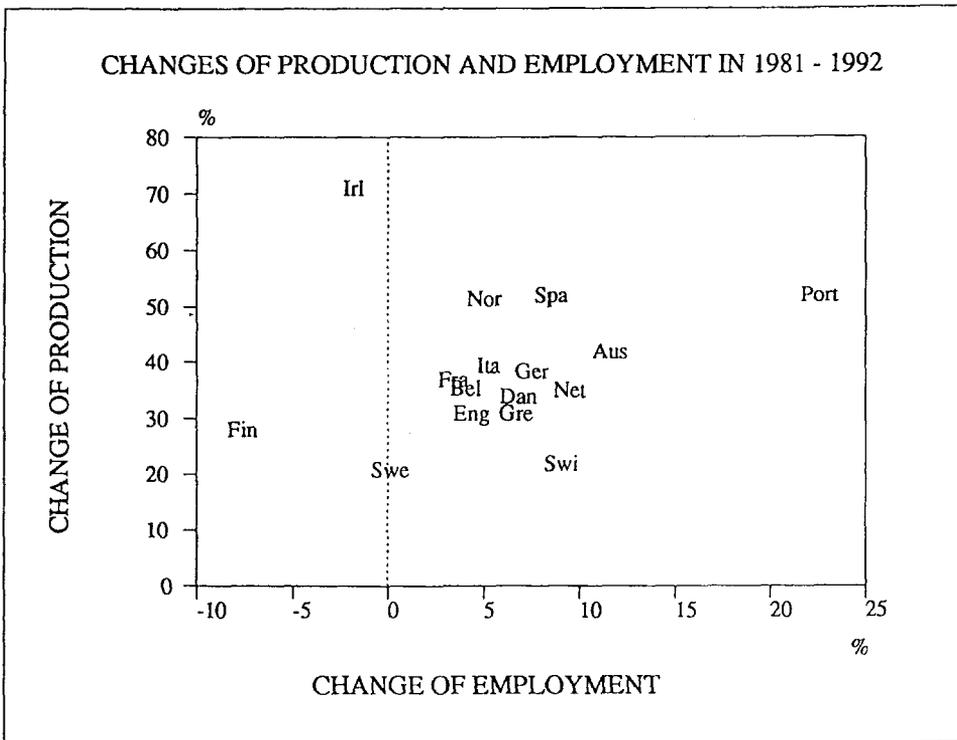
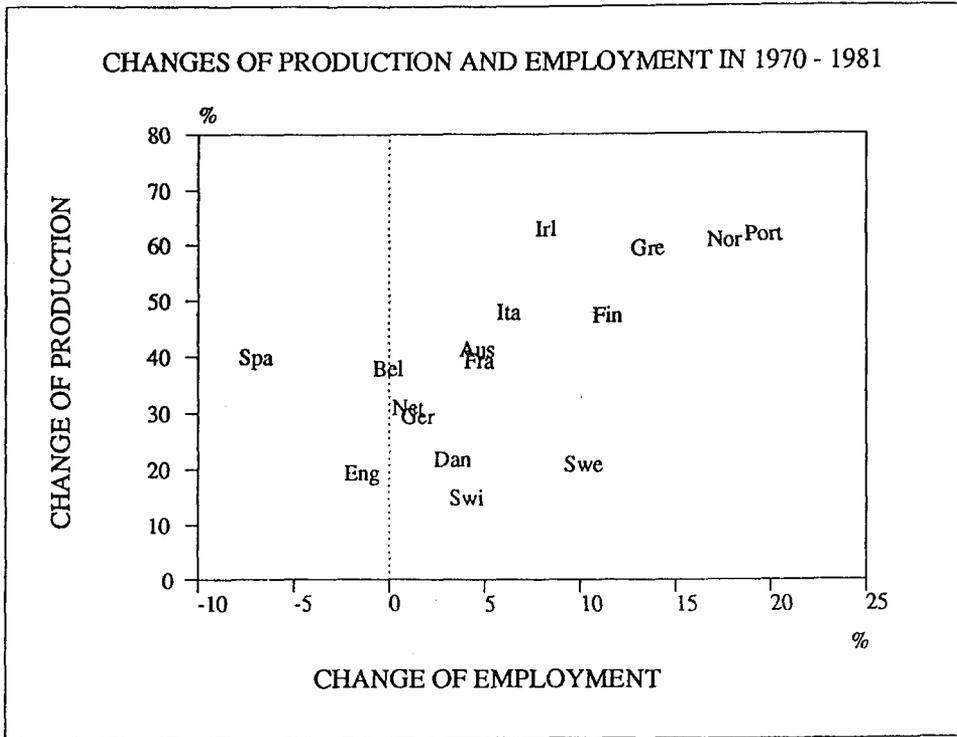
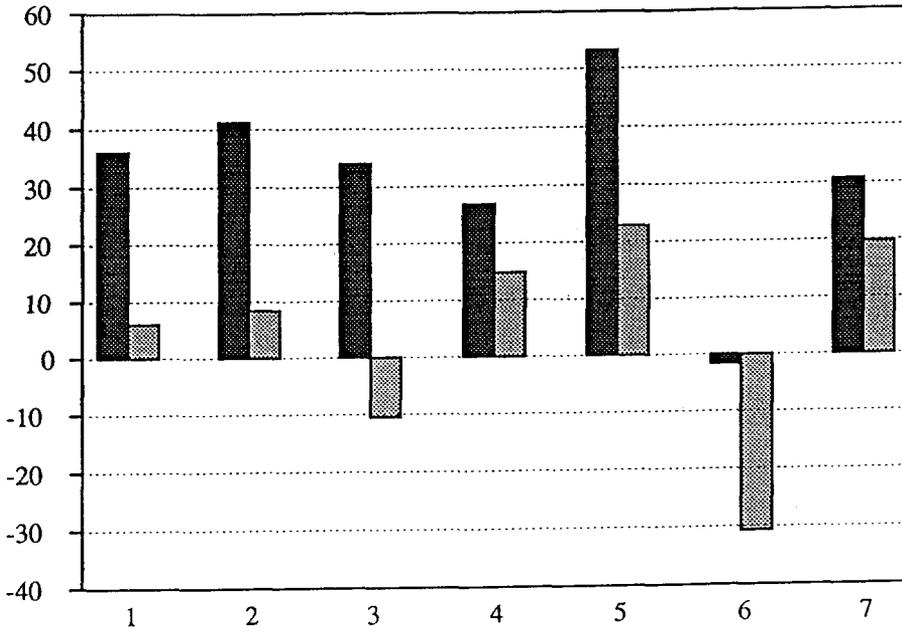
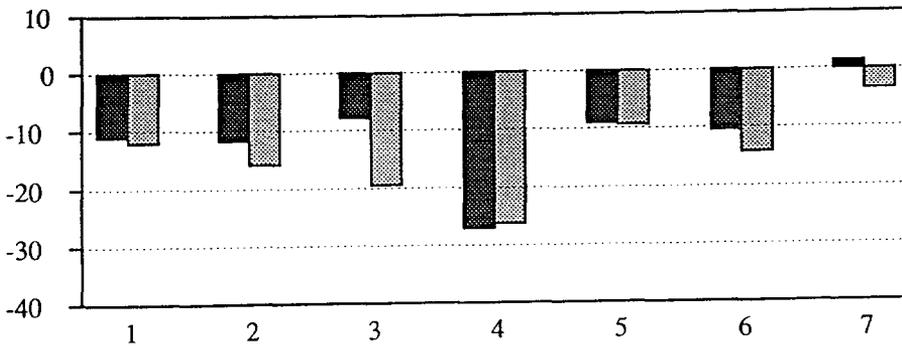


FIGURE 2. CHANGES OF PRODUCTION AND EMPLOYMENT BY INDUSTRIES BETWEEN TWO CYCLICAL PEAKS 1980 AND 1989 IN FINLAND: TOTAL CHANGES %



CHANGES OF PRODUCTION AND EMPLOYMENT BY INDUSTRIES FROM THE CYCLICAL PEAK 1989 TO THE RECESSION YEAR 1992 IN FINLAND: TOTAL CHANGES %



1 = GDP  
EMPLOYED PERSONS

2 = PRIVATE ENTERPRISES  
EMPLOYED IN PRIVATE ENTERPRISES

3 = MANUFACTURING  
EMPLOYED IN MANUFACTURING

4 = CONSTRUCTION  
EMPLOYED IN CONSTRUCTION

5 = PRIVATE SERVICE  
EMPLOYED IN PRIVATE SERVICE

6 = PRIMARY PRODUCTION  
EMPLOYED IN PRIMARY PRODUCTION

7 = PUBLIC SECTOR  
EMPLOYED IN PUBLIC SECTOR

■ PRODUCTION    ▨ EMPLOYMENT

# LABOUR MARKET FLOWS IN ECONOMIES IN TRANSITION: THE CASE OF POLAND

by Marek Góra<sup>2</sup>, Warsaw School of Economics

## 1 Introduction

The beginning of the 1990s brought fundamental changes to the functioning of eastern European economies. This concerned the labour markets in particular, which were turned upside down - from an excess labour demand regime to an excess labour supply regime - virtually overnight. In Poland, the U/V ratio in the late 1980s was under than 0.05, with over 20 vacancies for each unemployed person.<sup>3</sup> In 1990 this ratio jumped to 20 unemployed persons per vacancy. This initial shock was caused by the transition itself. A large part of the labour force ceased working even before output started to contract. Labour demand fell immediately and gradually employment started to decrease. There followed a stream of lay-offs which, in turn, was moderated by various institutional factors. The process was exacerbated by the fact that the contraction in output was greater than the contraction in employment. As a result, unemployment has been increasing continuously and rapidly throughout all the transition years (see Figure 1).<sup>4</sup>

Although this paper does not discuss policy issues, it is strictly policy-oriented. In the CEE labour market environment it is easy to use existing resources ineffectively on policies which do not really help the unemployed. Flow analysis studies are the best tool for formulating labour market policies, finely tuning their implementation and afterwards for evaluating their success. Compared to stock analyses of unemployment, flow analyses give a much better picture of the dynamics of the labour markets. It is particularly useful in periods of rapid change - such as those observed in the CEE economies.

From 1992, there have been two main sources of flow analysis data in Poland. These are: unemployment register inflow data and labour force survey (LFS) data on the duration of spells of unemployment.<sup>5</sup> This paper attempts to analyse existing information on labour market flows in Poland. The relevant data sources are good by CEE standards and are continuously improving but this was not the case before the beginning of 1992. Flow analysis of the first two years of transition had to be based

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<sup>2</sup> The author is grateful to Tito Boeri and Hartmut Lehmann for their valuable comments. All remaining errors are mine.

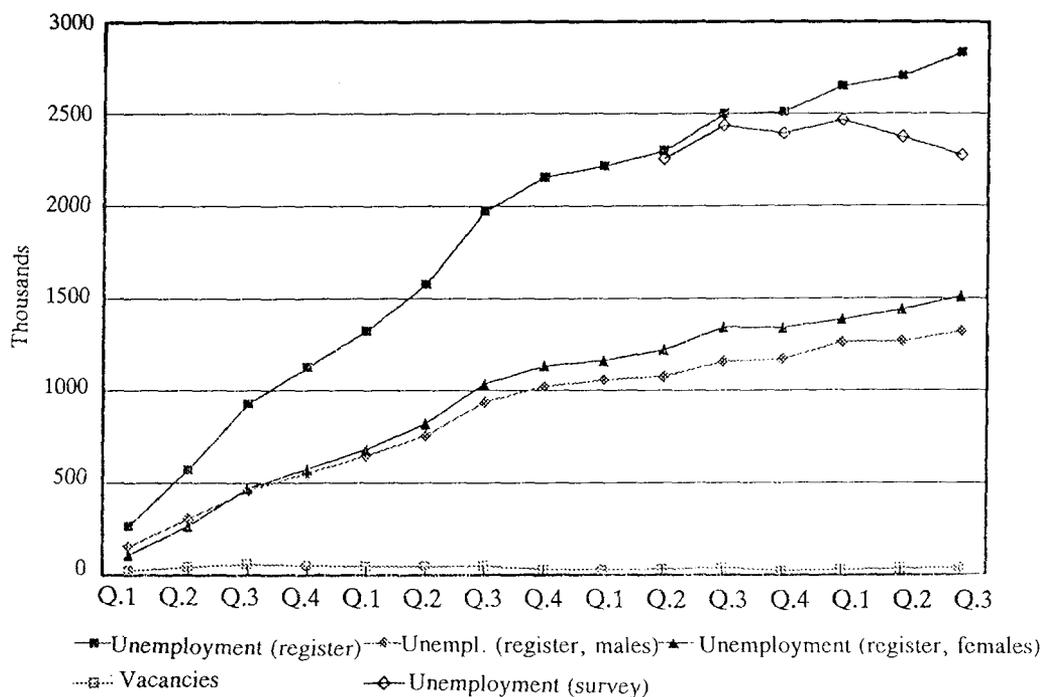
<sup>3</sup> The category "unemployed" did not exist that time, so in fact these were registered job seekers.

<sup>4</sup> For more information on labour hoarding and its consequences in economies in transition see Góra (1993).

<sup>5</sup> A labour force survey is carried out quarterly by the Polish Central Statistical Office. The representative sample covers approximately 50,000 individuals.

on a number of assumptions (see Góra and Lehmann (1992)) and the results cannot be compared with the results obtained for 1992 and 1993. So in this paper I will confine myself to the last two years.

Figure 1. Unemployment and Vacancies in Poland (1990 - 1993)



This paper analyses three main issues: unemployment flows, vacancy flows and reservation wages of the unemployed.

## 2 Unemployment flows

From the second quarter of 1992, labour force survey (LFS) information has been available for Poland. Polish flow data requires some additional explanation. The LFS provides good information which enables us to calculate inflows desegregated into broad groups. It also enables us to calculate relevant rates. However, it does not provide much information on outflows. In particular, it is impossible to distinguish whether an outflow represents a person entering employment or not. On the other hand, the register data is better with regard to outflows and much poorer with regard to inflows. In particular, we cannot calculate inflow rates since we do not have data

on the relevant origin population (registered employment). Therefore I have had to use both sources in the analysis.

Flow methodology was used to analyse labour reallocation along business cycles. In CEE economies we can hardly observe any business cycles. Nevertheless, flow methodology proved to be very useful in analysing labour reallocation independent of business cycles (see Bellmann *et.al.* (1992)). However, employing full flow methodology<sup>6</sup> for labour market flows in CEE economies seems to be a little premature. This is largely because there is an inadequate supply of reliable data. Therefore in this paper flows and their dynamics are presented without drawing many firm conclusions, for which in my opinion better data is required.

## 2.1 Presentation of data in the unemployment register

The register provides information on stocks, inflows and outflows to jobs. The calculation of total outflows is based on the commonly used basic relationship

$$(1) A_T = I_T - S_T + S_{T-1},$$

where:  $S_T$  = the unemployment stock at the end of period T;  $I_T$  = inflow into unemployment in period T;  $A_T$  - outflow from unemployment in period T.

Table 1 provides information on flows and principal flow-based indicators (annual averages). Figure 2 presents recent developments in unemployment resulting from the magnitude of flows into and out of unemployment.

The overall turnover observed in Poland in the last two years is very small compared to OECD countries. It is also small in comparison to other CEE countries (see Table 2). This results from low inflows (inflow rates) and also low outflows (outflow rates), indicating long spells of unemployment. The continuous increase in unemployment results from a continuously higher number of workers flowing into unemployment than those flowing out of unemployment. An international comparison shows that it is low outflows and not high inflows which are causing the increase in unemployment in Poland. The same pattern of reallocation of labour also dominates in virtually all other countries in the region.

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<sup>6</sup> See Blanchard and Diamond (1990).

Table 1. Main labour market indicators (annual averages per month)

	1992	1993 (1-3)	1992 (2-4)	1993 (1-3)
	register		survey	
Labour force	18 298.4	18 310.4	17 541.0	17 305.3
Employment	15 943.5	15 610.5	15 179.3	14 934.7
Employment (males)	..	..	8 336.3	8 191.3
Employment (females)	..	..	6 843.7	6 743.7
Unemployment	2 354.9	2 699.8	2 361.7	2 370.7
Unemployment (males)	1 103.4	1 272.3	1 163.0	1 152.0
Unemployment (females)	1 251.5	1 427.6	1 198.0	1 218.3
Unemployment rate	12.9 %	14.7 %	13.5 %	13.7 %
Unemployment rate (males)	..	..	12.3 %	12.3 %
Unemployment rate (females)	..	..	14.9 %	15.3 %
Unemployment rate (femal./urb.)	..	..	17.4 %	17.2 %
Inflow	130.0	164.3	159.3	140.3
Inflow (males)	69.2	87.0	86.9	75.2
Inflow (females)	60.8	77.3	72.7	65.6
Inflow rate	0.82 %	1.05 %	1.05 %	0.94 %
Inflow rate (males)	..	..	1.04 %	0.92 %
Inflow rate (females)	..	..	1.06 %	0.97 %
Outflow	100.5	128.7	141.0	175.5
Outflow (males)	56.8	70.4	82.8	97.7
Outflow (females)	43.7	58.3	58.5	77.7
Outflow rate	4.27 %	4.77 %	5.97 %	7.40 %
Outflow rate (males)	5.15 %	5.53 %	7.12 %	8.48 %
Outflow rate (females)	3.49 %	4.08 %	4.88 %	6.37 %
Steady-state aver.duration	16	14	13	15
Outflow to jobs*	54.5	62.4	..	..
Outflow to jobs (males)	32.9	36.9	..	..
Outflow to jobs (females)	21.6	25.5	..	..
Outflow to jobs rate	2.32 %	2.31 %	..	..
Outflow to jobs rate (males)	2.98 %	2.90 %	..	..
Outflow to jobs rate (females)	1.73 %	1.79 %	..	..
Outflow to jobs share in total	55.4 %	48.7 %	..	..
Outflow to jobs share (males)	58.9 %	52.5 %	..	..
Outflow to jobs share (females)	51.0 %	44.0 %	..	..

\* Registered outflows to jobs - the actual figures may have been bigger.

NOTE: The data originates from two different sources. It is not advisable to compare absolute figures. It is dynamics that should be compared.

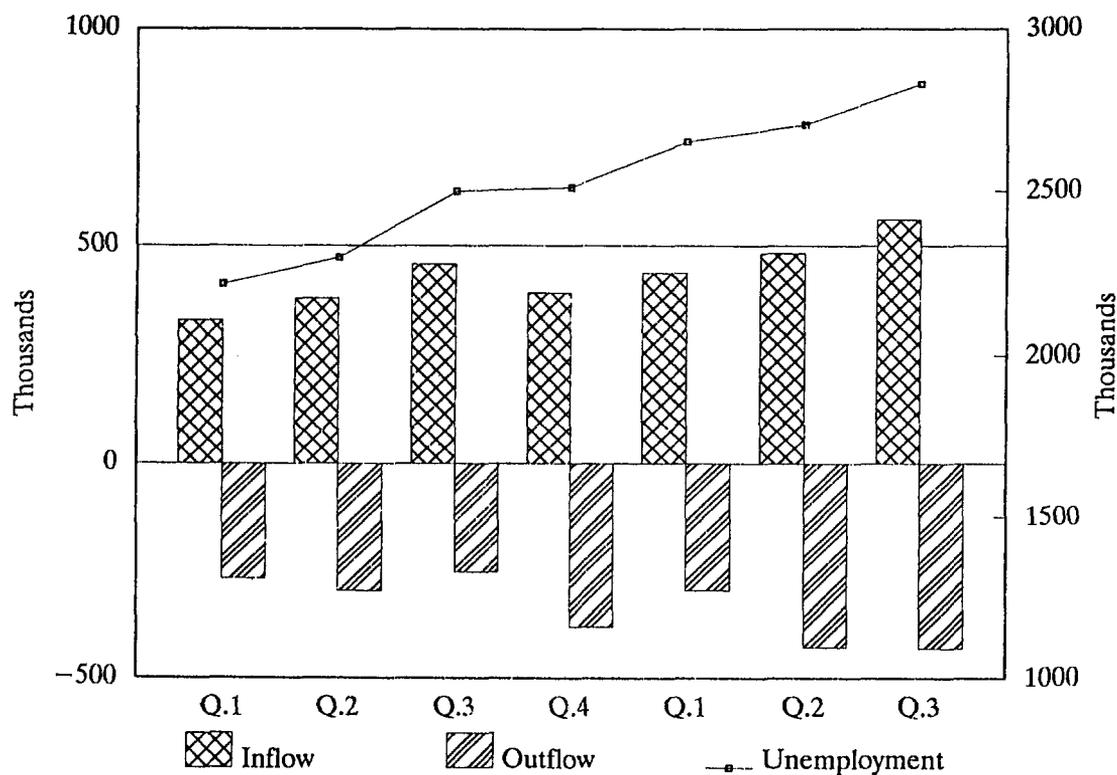
Table 2. Labour market turnover in selected countries (1992)

	Inflow rate	Outflow rate	Outflow to jobs rate	Unemploy. rate
Bulgaria	1.2	5.8	1.2	12.9
Czech Republic	0.5	24.0	17.4	3.2
Hungary	0.5	5.2	2.2	11.6
Poland	0.6	4.4	2.2	13.3
Slovak Republic	0.8	10.4	5.1	12.1
East Germany	1.5	10.8	3.9	15.6
West Germany	0.9	16.3	6.9	5.8
Austria	1.0	25.8	16.3	3.7
France (1991)	0.9	11.4	4.8	9.5
Norway (1991)	1.3	35.8	16.6	5.5
UK (1991)	1.0	13.5	..	8.1

.. Data not available.

Source: Tito Boeri (1993), 'Labour market flows and the Persistence of Unemployment in Central and Eastern Europe', OECD.

Figure 2. Inflows into and outflows from unemployment, register data (1992 and 1993)



The low inflow rate suggests a limited reallocation of labour. In CEE economies, we might expect an extended reallocation resulting from the sharp change in the demand structure and privatization. However, the emphasis has been on protecting existing jobs rather than creating new ones. This prolongs the transition and means that labour market problems are likely to become more difficult and long-lasting. In the short run, however, this attitude towards labour market developments is probably less politically and socially dangerous.

Fortunately, labour turnover has recently begun to increase. Both inflow and outflow rates calculated for 1993 (first three quarters) are much higher than the rates calculated for 1992. Unfortunately, the outflow to jobs rate for 1993 is virtually equal to the rate for 1992. Hence, the proportion of those leaving the unemployment pool for jobs is decreasing (see Table 1).

### School leavers

The inflow of school leavers has a clear seasonal pattern, as in other countries. Each year the seasonal increase in the inflow can be easily predicted, although it is always partially artificial. According to the present regulations in Poland, school leavers cannot claim benefits immediately after registration. Unemployment benefit is paid after a three month period. In consequence, the vast majority of school leavers who do not have jobs arranged in advance register at labour offices "just in case". If they are not successful in finding a job they have some money waiting for them after their vacation.

### Schemes

Employment schemes create feedback between outflows from unemployment and inflows into unemployment. Those who participate in government-sponsored employment or public works programmes are considered as an outflow from unemployment. In Poland these types of schemes usually last for six months. According to the law working for six months renews the entitlement to unemployment benefit. So unemployed persons who leaving such schemes return to the pool of unemployment (inflow)

$$I^{PW} = A^{PW}_{T-6},$$

where  $I^{PW}$  denotes the proportion of the outflow and inflow of unemployed workers taking part in public works programmes.

This means that, taking into account irregular waves of outflows to public works programmes, we have to expect a kind of lagged effect on inflows after six months. Variations in inflows can be partially explained by variations in outflows resulting

from official policies.<sup>7</sup>

## Observation

Although I do not analyse flows in 1990 and 1991 in this paper, it is worth mentioning that a large part of the inflow into unemployment which occurred in these years originated in the NLF. Apart from school leavers and other young people entering the labour market, a number of people who were not unemployed but were not employed either registered at labour offices. The original law providing unemployment benefit was the obvious incentive for registration. Therefore Poland experienced a kind of fictional labour force shock. The law was changed with respect to eligibility for benefits and most of those people who flowed into unemployment at that time then flowed out again after losing their benefits.

## 2.2 Presentation of data in the labour force survey

Labour market flow data based on the LFS requires some explanation. The survey itself does not provide data on flows. In this paper they have been estimated using data on the duration of unemployment spells. Those with a spell of up to three months are accounted for in the inflow of the previous months. One can easily see that this calculation gives a net inflow in the previous three months. We do not take into account those who flow into unemployment and stay in the pool for less than three months. Consequently, the numbers presented in the paper on both inflows and outflows are slightly underestimated.

$$(2) \quad I_{\text{net}} = I_{\text{gross}} - A^{(3)},$$

$$(3) \quad A = I_{\text{net}} + A^{(3)} - S_T + S_{T-1},$$

where  $A^{(3)}$  = outflow of persons with a spell of unemployment of less than three months, others as in equation (1).

This is the only way to calculate flows based on the existing survey data. I would argue that the bias we get is negligible, hence we can accept this idea. On anecdotal evidence, unemployed people in Poland do not usually take new jobs for a couple of months after registration. The only component of  $A^{(3)}$  which is likely to behave in a different way is the outflow of school leavers who registered "just in case" after graduating from school. However, even this category should not substantially bias the

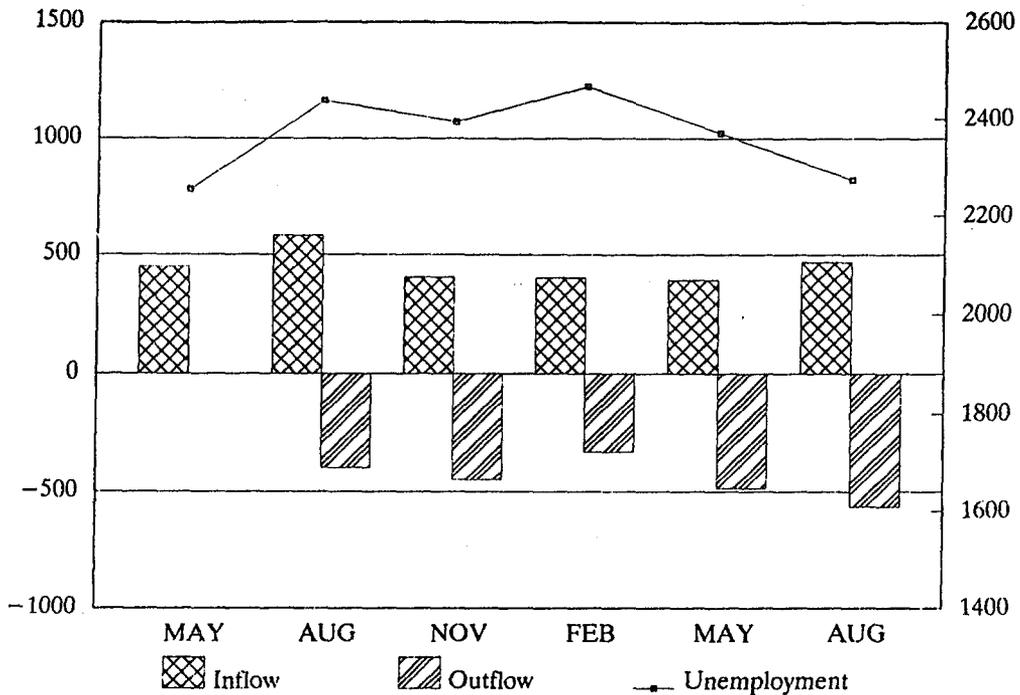
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<sup>7</sup> In 1992 most public works programmes started at the very end of the year. They terminated in mid-1993 and generated an inflow which added to the inflow of school leavers. The result can be observed in Figure 3.

results since the August wave of the survey is carried out between one and two months after the vast majority of school leavers register (June/July).<sup>8</sup>

Table 1 presents annual averages calculated for 1992 and 1993 (three quarters). The survey-based labour turnover differs from that based on the register. The inflows are decreasing (unlike the register inflows which are increasing). The outflows are increasing in both cases but the outflow rate is substantially higher for the survey data. Both lower inflows and higher outflows contribute positively to the recently observed decrease in survey unemployment (see Figure 3).

Figure 3. Labour market flows  
(LFS 1992 and 1993)



### 2.3 Register versus survey unemployment

One can see that Polish unemployment developments observed through the survey data are not in line with the register-based information (see Figure 1). In general, the survey data cannot be fully compared with the register data and the difference between the two at any given moment is not very informative. However, in the case under consideration the difference concerns the tendency. Register unemployment rises along the trend observed from the beginning of 1992, while survey

<sup>8</sup> This is obviously questionable. Hence, the results of analyses based on this source are less reliable.

unemployment has been falling since the beginning of 1993. The difference in unemployment figures obtained from the two sources is constantly increasing.

It is difficult to judge whether the survey data represents a "truer" number of unemployed than the register data, or the other way round. However, as regards the tendency of unemployment, the survey methodology seems to be the more powerful. Therefore we could say that unemployment has been decreasing recently in Poland.<sup>9</sup> The question is why the two sources show a different tendency. Flow analysis would help us to answer the question but we do not have the necessary data for the investigation. Here we have to use stock data to answer the question.

The total difference between the number of unemployed in the register and the survey has been disaggregated into four categories:

- (1) unemployed men with spells of up to 12 months;
- (2) unemployed women with spells of up to 12 months;
- (3) unemployed men with spells of over 12 months;
- (4) unemployed women with spells of over 12 months.

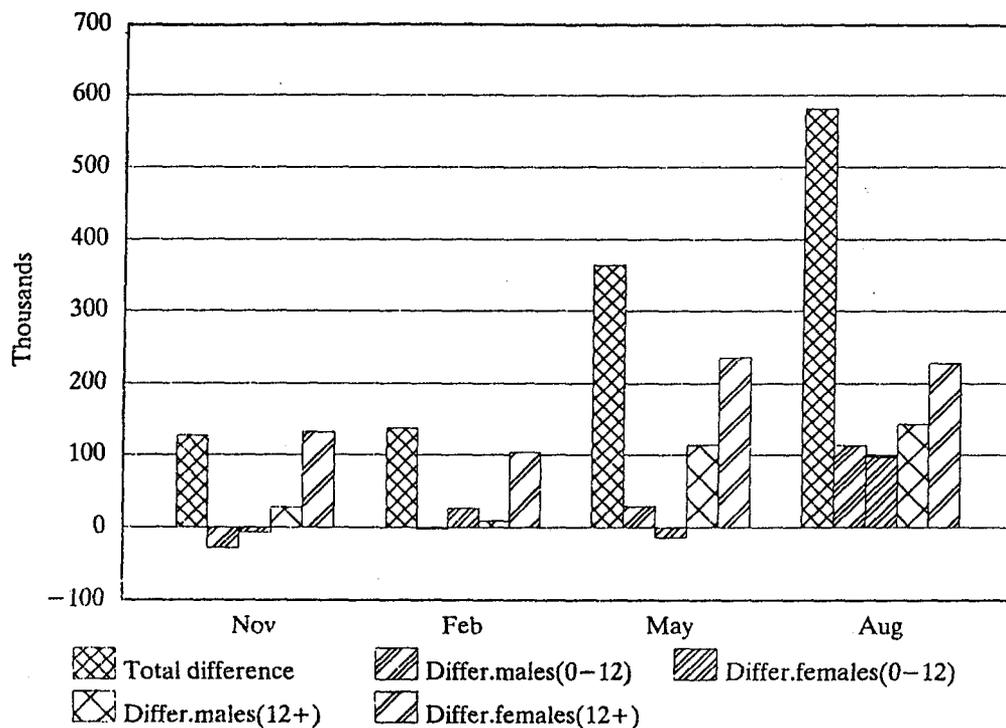
As already mentioned, the difference is very small for the second and third quarters of 1992 (see Figure 4). The same concerns differences for each category of the unemployed. The situation changes in the fourth quarter. The overall difference increases. This results from the increase in the difference for the fourth category alone. Changes in all other components of the difference remain neutral. In the case of long-term unemployed women, the two sources indicate different levels of unemployment, or rather the two sets of data present different trends. A similar situation is observed in the first quarter of 1993. In the second quarter the difference increases due to the increase in the long-term unemployed women component and also because the data for long-term unemployed men starts to perform in the same way. Finally, in the third quarter the data for all categories of unemployed contributes to the overall difference. The range between the initial and final difference is almost 600 000.

If we had survey data for outflows we would be able to say much more on the above case. However, even the data we have suggests that it is not just a random discrepancy between the two sources of data.

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<sup>9</sup> The "true" number of unemployed may even be above both the register and survey numbers.

Figure 4. Difference between register and LFS data and its components, Nov 1992 - Sep 1993



I will attempt to explain these developments as follows. In the fourth quarter of 1992 an important legal regulation was introduced. It created an institutional link between registration and entitlement to free health care. Everybody who is registered - including his/her spouse and children - is covered by the system even if they are not entitled to unemployment benefit. This reform (or one of a number of others) may have triggered the process mentioned above. Women are generally very sensitive to various kinds of social protection. They were the first to react to the new regulation and their reaction was very simple. A proportion of long-term unemployed women who had ceased looking for work began showing up regularly at labour offices. These women would have flowed out from unemployment if there had been no incentive to stay, but the free health care regulation provided the incentive. It is likely that in many cases the only reason for being registered is to provide families in which men have irregular jobs with free health care. In subsequent quarters other categories of the unemployed joined the long-term unemployed women.<sup>10</sup> This could be the explanation of the phenomenon. A proportion of those who would have flowed out from registered unemployment pretend they are still unemployed since it is beneficial for them even if they are not unemployment benefit claimants.

<sup>10</sup> I think it is necessary to stress that I am not suggesting that the unemployed should be without health care.

The Polish case presented above is an example of how institutional factors can affect labour markets. The institutional frameworks of the labour markets in the CEE countries have mostly been established very recently and with very limited experience, if any, and this has been done under great time pressure. It takes time to assimilate the experience of other countries and even longer for a country to acquire its own experience. Although the institutional frameworks differ in CEE countries, it is very likely that the institutional feedback analysed in connection with the Polish labour market may be replicated in all the other countries of the region.

## 2.4 Distribution of outflows

A common feature of the CEE labour markets is that there are low outflows from unemployment to jobs (see Table 2). Only a small proportion of the unemployed re-enter employment. All the others leave the register for various reasons. Table 3 gives the most recent Polish data in that respect. In September only 40.2 % of those who deregistered took a regular job; 51.6 % either left the labour force or did not report the fact of taking a job.

Table 3. Outflow distribution (register data; September 1993)

Total outflow	165 809
Outflow to jobs	79 781
to regular jobs	66 614
to subsidized jobs	8 793
to public works	4 374
Outflow to NLF (itemization below)	85 638
1. Is not ready and/or willing to take a job	54 362
2. Retired	900
3. Started school	5 933
4. Went abroad	3 524
5. Started military service	1 011
6. Other reasons	19 845

Source: GUS.

Departure from the unemployment pool may indicate: retirement, starting further education, moving abroad or entering military service. However, Table 3 also suggests that categories 1 and 6 may contain so-called discouraged workers who leave the labour market because they no longer believe that they can find a job. Categories 1 and 6 represent 86.7 % of the total outflow from unemployment to the NLF. It is

possible that a large proportion of the total outflow from unemployment to the NLF consists of discouraged workers. On the other hand, according to the survey, the number of discouraged workers in the NLF is relatively stable.<sup>11</sup> Some of those flowing out from unemployment to the NLF may originate in the group which flowed into unemployment in order to draw benefits. Again, we do not have the necessary data for more detailed analysis.

A decrease in unemployment is not necessarily a good sign. If this decrease is mainly caused by higher outflows of discouraged workers, then the decrease in unemployment may be misleading. In that case it may be simply translated into an increase in hidden unemployment.

### **A remark**

Early retirement policy and poorly defined invalidity regulations, although they do not affect unemployment, play a very similar role in the labour market to that played by the outflow of discouraged workers - they reduce the labour force. These types of policies are widespread in Poland.<sup>12</sup> As a result, the unemployment rate among 25-49 year-olds is 13.0 % whereas it is 8.5 % in the 50-54 age bracket and 7.9 % among 55-60 year-olds.<sup>13</sup>

## **2.5 Distribution of spells of unemployment**

The rapid increase in unemployment in Poland was not caused by large inflows - it was caused by very small outflows from unemployment. Low outflows, in turn, cause spells of unemployment to be long. Information on the average uncompleted duration of spells of unemployment is now available from the LFS. For the second and third quarters of 1993 this duration is 13 months with very little variation by sex or area of residence (see Table 4).

Longer spells of unemployment cause an increase in the number of long-term unemployed (defined as a spell of unemployment lasting over 12 months). This number started to rise from the zero level at the beginning of 1991. In mid-1992 the process reached a relatively stable level at just below 40 % (according to the LFS) or slightly above 40 % (according to the register) as of September.

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<sup>11</sup> In 1992 and 1993 this varied between 134 000 and 145 000. This represents roughly one quarterly outflow.

<sup>12</sup> See OECD (1993).

<sup>13</sup> May 1993.

Table 4. Unemployment flows and duration (survey data; 1992-1993)

	Unemployment rate (%)	Inflow rate (%)	Steady-state average completed duration (months)	Average uncompleted duration (months)
total				
Q.2	12.9	1.0	13.1	..
Q.3	13.8	1.3	10.8	..
Q.4	13.7	0.9	15.4	..
Q.1	14.3	0.9	15.8	..
Q.2	13.8	0.9	15.7	13
Q.3	13.1	1.0	12.7	13
males				
Q.2	11.9	1.0	12.5	..
Q.3	12.5	1.2	10.1	..
Q.4	12.4	0.9	13.2	..
Q.1	13.1	1.0	13.8	..
Q.2	12.4	0.9	14.1	12
Q.3	11.5	0.9	12.5	12
females				
Q.2	14.1	1.0	13.9	..
Q.3	15.4	1.3	11.6	..
Q.4	15.2	0.8	18.1	..
Q.1	15.6	0.9	17.9	..
Q.2	15.4	0.9	17.5	14
Q.3	14.9	1.2	12.8	13
urban areas				
Q.2	15.1	1.2	12.5	..
Q.3	16.2	1.5	11.0	..
Q.4	15.8	1.0	15.3	..
Q.1	15.9	1.0	15.9	..
Q.2	15.7	1.0	15.2	13
Q.3	14.7	1.1	12.9	13

.. Data not available.

Table 1 presents figures on the average completed duration of all spells of unemployment in the steady state. In the case of both register and survey data durations decreased in the first three quarters of 1993 compared to 1992. However, only the latter source enables us to assume a steady state. Table 4 presents the average completed duration of spells of unemployment for various categories of unemployed calculated using survey data.

(4) Average duration = Unemployment rate/Inflow rate.

Usually the average uncompleted duration of current spells of unemployment is greater than the average completed duration of all spells of unemployment. This

results from higher exit probabilities for shorter spells.<sup>14</sup> Table 4 shows that this does not entirely hold for the Polish data (particularly for males). An explanation of this could be as follows. As explained in the section on flows, a large proportion of those who flow out from unemployment do not take new jobs. These outflows probably originate from the long-term unemployed.<sup>15</sup> Hence, exit probability is high for the long-term unemployed, maybe even higher than for those with shorter spells of unemployment.

## 2.6 Job to job flows

Available data on the pattern of recruitment is very limited. We only have gross annual figures for recruitment in large and medium-size firms.<sup>16</sup> This data suggests that 63.2 % of cases constituted job-to-job movements without any spell of unemployment in between. This leaves very little room for recruiting persons who have already lost their jobs, since the remaining 36.8 % includes school leavers, other new entrants, women returning from maternity leave and others returning after long leaves of absence. The remainder - those hired from the unemployment pool - equates to roughly 14 to 19 % of total recruitment in large and medium size firms.<sup>17</sup>

Even if we assumed that the proportion of unemployed persons of those recruited in small firms was significantly higher, recruitment of unemployed people is a relatively small part of the total. This suggests that the unemployment pool plays a minor role in the labour reallocation process. It also suggests a "dark" future for those who have lost their jobs. High gross job-to-job flows may be partially a continuation of the command economy pattern of the reallocation of labour. It is more likely that it is a sign of labour market segmentation. Certain groups of people do not have any problems in finding jobs. The remaining groups consist of people whose position is weaker.

## 3 Vacancy flows

In comparison to the flows of unemployed people there is much less to be said about vacancy flows. The main reason for this is that there is only limited information available on vacancies. The ministry of labour reporting system does not cover the vacancy situation in detail, nor has any other representative survey been introduced yet. Nevertheless, we can supplement the analysis presented in point 3.1 with some additional points regarding vacancies.

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<sup>14</sup> See Layard *et. al.* (1991).

<sup>15</sup> Unfortunately we do not have data on outflows by duration of spells. So this cannot be proved.

<sup>16</sup> This means excluding the most dynamic part of the economy, small private firms employing up to 5 people.

<sup>17</sup> Precise data is not available.

It has already been mentioned that labour demand decreased very sharply at the very beginning of the transition period. The number of vacancies dropped from more than 200 000 in the late 1980s to around 20-30 000 at the beginning of 1990. Although the number of vacancies varied throughout the years of transition, it has now stabilized at around this level (see Figure 1). In the same figure the sharp difference in labour market developments between unemployment and vacancies is also illustrated. The rapid increase in unemployment accompanied by unchanged numbers of vacancies led to extremely high values of the U/V ratio - up to more than 100 unemployed per vacancy in the first quarter of 1993.<sup>18</sup>

Table 5. Registered vacancy flows

	1992	1993 (1-3)
Vacancies in thousands	31.0	33.1
Vacancies (public sector)	9.1	7.4
Vacancies (private sector)	21.9	25.7
Vacancies in the private sector as a proportion of the total	70.55 %	77.67 %
Inflow in thousands	40.1	45.7
Inflow (public sector)	12.9	12.0
Inflow (private sector)	27.2	33.7
Inflow rate	0.25 %	0.29 %
Inflow rate (public sector)	0.19 %	..
Inflow rate (private sector)	0.30 %	..
Outflow in thousands	40.7	43.6
Outflow (public sector)	10.6	11.8
Outflow (private sector)	30.1	31.8
Outflow rate	130.97 %	131.85 %
Outflow rate (public sector)	115.97 %	159.94 %
Outflow rate (private sector)	137.23 %	123.77 %
Average duration of existence of a vacancy (days)	23	23
Average duration of existence of a vacancy (public sector)	26	19
Average duration of existence of a vacancy (private sector)	22	24
Total outflow of vacancies per year in thousands	487.9	392.4
Total outflow of the unemployed to jobs per year (thousands)	654.4	561.9

The true number of vacancies available in the economy is much higher than the number of reported vacancies. It is difficult to estimate even roughly what proportion

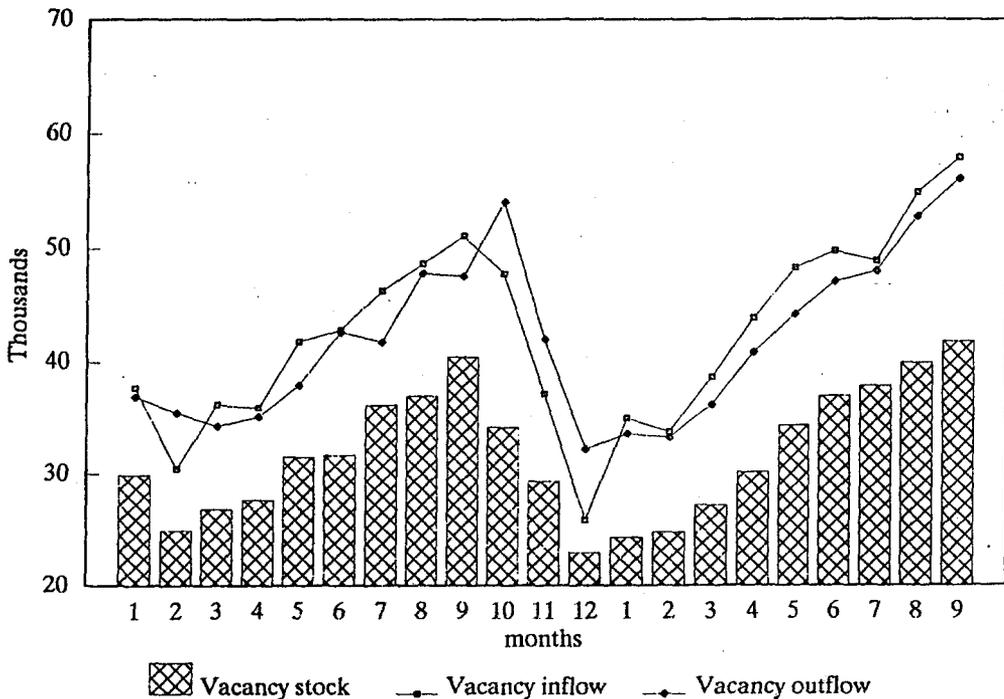
<sup>18</sup> The ratio subsequently declined to around 70.

is actually reported. So the dynamics of the number of vacancies which are actually reported can only be used as an indication of the dynamics of all vacancies.<sup>19</sup> In Poland, however, the scale of job-to-job flows suggests that the proportion of reported vacancies is very small (in comparison to OECD countries).

Basic information on vacancy flows in Poland is given in Table 5. Four main points should be stressed.

- 1) Vacancies are predominantly in the private sector and the proportion of these vacancies of the total is rising.
- 2) Vacancy inflows and outflows are larger than the stock of vacancies.
- 3) Inflows and outflows follow the same seasonal pattern and have similar values (see Figure 5).
- 4) Vacancy turnover is very quick; in 1993 it was much quicker in the public sector.

Figure 5. Vacancy flows and stock.  
Register data (1992 and 1993)



<sup>19</sup> See Blanchard and Diamond (1989).

The number of vacancies reported to labour offices is very small. Those vacancies which are reported are filled very quickly and it is very likely that the number of vacancies unfilled for a long period of time is very small, if such vacancies exist at all.<sup>20</sup> This suggests that the structural component of unemployment is very small.

#### 4 Reservation wage

The Polish LFS also gives us some information on the reservation wage of the unemployed. Figure 6 shows how the reservation wage has developed against the average and minimum wage. The level of the reservation wage, although below the average wage, is well above the minimum wage. Throughout the period covered, the reservation wage ranges between 65 and 70 % of the average wage and between 170 and 185 % of the minimum wage. Detailed survey-based information on wages is also available for September 1992. The reservation wage declared by the unemployed in September 1992 equalled 93 % of the modal range (see Table 6), which means that unemployed people were looking for jobs similar to those of their peers.<sup>21</sup>

As mentioned in 3.2, the number of jobs available at labour offices is very limited. However, those which are available offer relatively low wages - not much above the level of the minimum wage.<sup>22</sup> The high turnover of the small number of vacancies posted at labour offices is probably caused by asymmetry in the distribution of reservation wages<sup>23</sup> - there are people whose reservation wage is low enough for them to accept the jobs available.

Attempts to investigate wage levels are usually very difficult and the results may be biased. It is very likely that the information originating from the Polish LFS is not fully accurate. So, in my opinion, all we can say about the reservation wage compared to actual average wages is that it varies a lot.

However, we also have information on the distribution of reservation wages by the duration of spells of unemployment. This information is reliable even if we are not sure whether the information on the absolute level of the reservation wage is correct. The most recent distribution (August 1993) is presented graphically in Figure 6. One can see that the amount declared as the reservation wage is almost insensitive to the length of the spell of unemployment - which is an interesting result. Those unemployed with spells of between 12 and 24 months declare their reservation wage to be 96.1 % of the reservation wage of those who have just lost their jobs (spell from 0 to 3 months). For those with spells over 24 months the percentage is 95.2. For males the same percentages are 98.9 and 99.0. Females accept much lower wages

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<sup>20</sup> Concrete data is not available.

<sup>21</sup> The average reservation wage for September was calculated using the values obtained for August and November.

<sup>22</sup> This is based on anecdotal evidence. Concrete data on wage offers is not available.

<sup>23</sup> The only information available on distributions is the mean value.

than men (on average 81.2 % of the male reservation wage). However, their reservation wages are equally insensitive to the duration of the spell of unemployment.

Table 6. Reservation wage (survey data; September 1992)

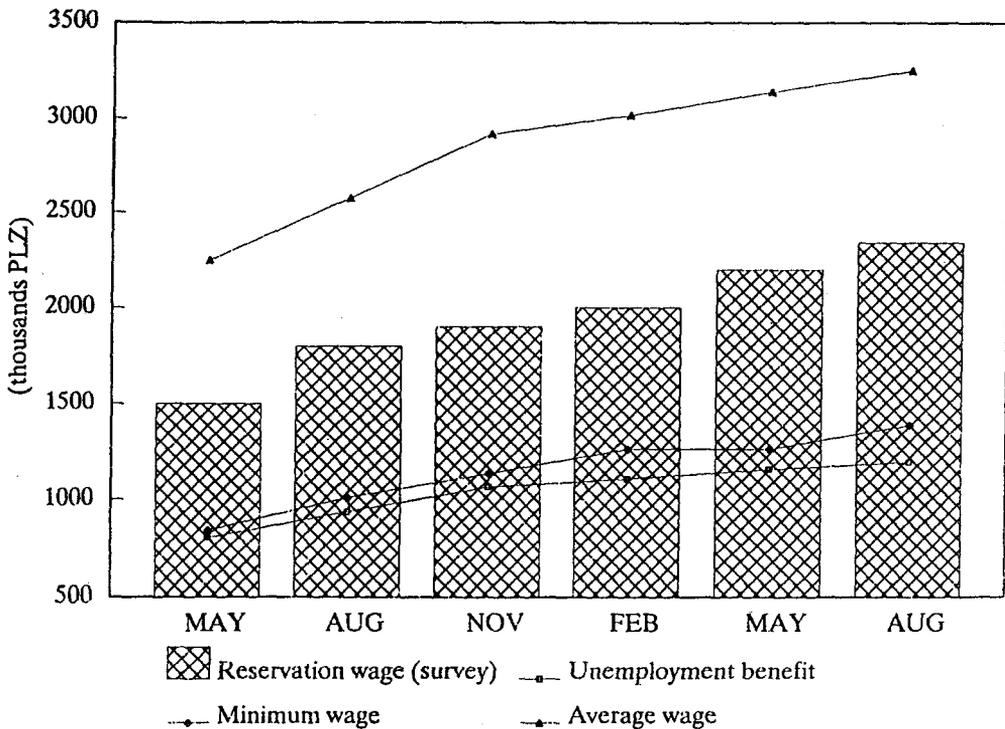
As a percentage of:

1. unemployment benefit	185 %
2. minimum wage	175 %
3. dominant wage (wage survey)	93 %
4. median wage (wage survey)	80 %
5. mean wage (wage survey)	70 %

Source: Wage survey, GUS; Labour Force Survey, GUS.

Note: The reservation wage for September was calculated as the average of the LFS findings for August and November.

Figure 6. Reservation wage by duration of unemployment spell (third quarter 1993; net amounts; survey)



The level of reservation wages is bound to have an impact on outflows from unemployment. The outflows would probably be higher if the reservation wages of the unemployed were not so high. The information analysed above suggests that there is a group of unemployed who are voluntarily unemployed. I would like to stress that the conclusion presented above is tentative, and even if it is true it does not apply to all the unemployed.<sup>24</sup> On the other hand, it is likely that part of this group is actually employed in the irregular ("grey") sector of the economy. In any case, any pick-up in demand may cause less of a decrease in unemployment than expected.

## 5 Concluding remarks

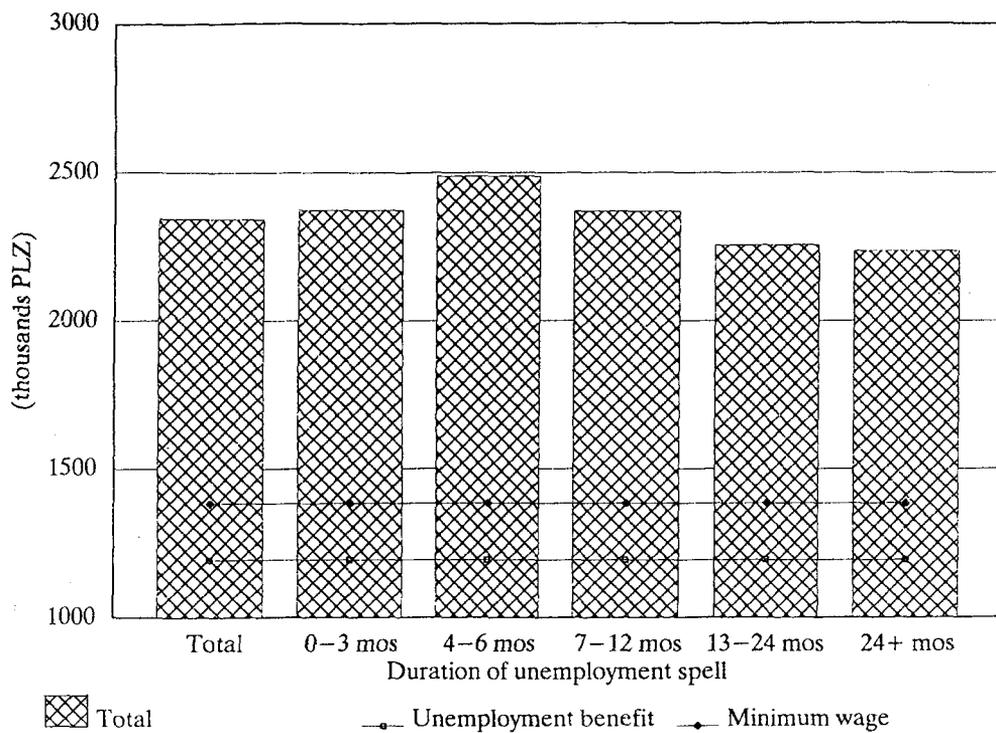
- 1) The Polish labour market and those in neighbouring countries are characterized by low inflows and long periods of unemployment.
- 2) The impact of various institutional factors is clearly observed in Poland.
- 3) A large part of the outflow from unemployment does not join the labour force, contributing to a contraction of the labour force.
- 4) I would agree with Lehmann (1993) who suggests that the term "hiring process" is much more suitable than the expression "matching process". In Poland there is huge asymmetry in the estimated mean hiring rate and the estimated job-finding rate.<sup>25</sup> The unemployed have no bargaining power. The number of vacancies plays a very limited role in the hiring process.
- 5) The hiring process is additionally handicapped by the benefit/minimum wage ratio, which is close to 1 (see Figure 7), creating a disincentive to seeking a new job.
- 6) The high relative level of the reservation wage and the insensitiveness of this level to the duration of spells of unemployment suggests that there is a classical component in unemployment.

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<sup>24</sup> I would like to avoid any simplistic policy conclusions that may be drawn from the point about the reservation wage.

<sup>25</sup> In Lehmann (1993) the figures are 1.767 and 0.023 respectively. See also Boeri (1993) and Burda (1993).

Figure 7. Reservation Wage (May 1992 - August 1993)  
(net amounts; survey)



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## COMMENT

by Merja Tekoniemi, Bank of Finland

Poland can certainly be regarded as one of the best managed transition economies, as economic activity appears to be more vigorous there than in many other such countries. Progress can be seen, for example, in rising output in several industrial sectors. Forecasts for 1993 and 1994 indicate that growth will reach 3 - 5 % in both years. Despite this, unemployment has continued to rise. Growth in the private sector, which has been considerable, has not sufficed to offset job losses in the socialized sector, although today more than 60 % of the Polish labour force is employed in the private sector. The growing importance of the private sector to the economy of Poland can be clearly seen from the figures presented by Mr Gora. For example, the share of the private sector of the number of vacancies is 78 %. In comparison, in Russia 60 % of the labour force works in the state sector, 19 % in the so called mixed sector and 19% in private companies.

Poland's unemployment started to rise at the beginning of the 1990 from a base of virtually zero. Over the last four years the unemployment rate has risen to an estimated 16 % for 1993. According to some estimates the peak of Polish unemployment will soon be reached, but on the other hand it may be a little too early to say if it really is levelling off. At least the growth estimates for the Polish economy seem promising. On the basis of survey (LFS) information, Gora says that unemployment has been decreasing recently in Poland, although he admits, that the true number of unemployed may remain above survey-based and register numbers. In the case of register and survey data the duration of unemployment in the first three quarters of 1993 decreased as compared to 1992.

The rapid growth of unemployment in Poland stressed in Gora's presentation is a real psychological shock for the population. In a country where labour hoarding and excess demand for labour have been commonplace, it must be quite difficult to adapt to the new situation. It is now of the utmost importance to clarify the role of unemployment offices and to develop their functions. From Gora's presentation one has the impression that unemployment offices do not function efficiently. The inefficiency of unemployment offices is seen, for example, in the low number of reported vacancies in unemployment offices and in the relatively large proportion of discouraged workers, who leave the labour market in the belief that they will never again find a job. Gora estimates that roughly half of the total outflow from unemployment to "not in the labour force" (NLF) consists of discouraged workers. Although the number of disenchanted workers in real terms may be low and it is hard to predict whether it is going to grow, it would be important not to neglect this group totally. If the majority of these discouraged workers are in fact those registered solely because of benefits, then the qualifications for registration as unemployed must be checked.

Looking at other eastern European countries, one notices a similar development in unemployment in these countries, with the exception of the Czech Republic, where the official unemployment rate remains under 4 %. Forecasts for 1993 for Slovakia, Hungary, Slovenia and Bulgaria indicate an unemployment rate of approximately 15%. In the former Soviet Union the development of the unemployment rate has clearly been much slower. The official unemployment rate in Russia is only about 1%. There the transformation process has not moved as swiftly as in Poland and the share of hidden unemployment remains high. Labour hoarding is common. However, in Estonia, which has moved ahead much faster than any other former Soviet state, the unemployment rate for this year run from 4 % to 10 %. If unemployment is considered as an indicator of the pace of structural change, Russia and the other former Soviet states certainly have a long way to go. The elimination of hidden unemployment in these countries will be an important source of open unemployment in the near future. In this sense, Poland can be considered as being ahead of at least the former Soviet Union in restructuring its economy.

One of the most visible trends in the Polish labour market, according to Gora, is the small turnover among the unemployed, indicating a lengthening of unemployment. Despite the fact that longer duration of unemployment usually means lower reservation wages, the survey findings indicate that the reservation wage is almost insensitive to both the duration and the area of residence. This fact stands out, because the problem of regional variation in unemployment is evident in Poland. The most problematic regions in this respect are the north eastern and north western regions of Poland, with the exception of the south western Silesian region. The difference in unemployment rates between these "problem" regions and those where unemployment is lowest is as much as 17 percentage points.

Although females could accept much lower wages than men, the number of unemployed women is permanently higher than the number of unemployed men and the difference is rising. According to Gora, one explanation for some women being registered as unemployed is to provide families with free health care, which was made possible by a new regulation at the end of 1992.

The difficulties arising from the fact that the statistics of labour market trends are not yet sufficient are common to all reforming ex-socialist countries. It takes time to develop a system in which all the data are computerized and all the necessary components reflecting unemployment can be fully analysed. It is hard to judge whether the various estimates in Gora's presentation affect the concluding remarks on unemployment in Poland, but the fact that register and survey-based data are not fully comparable with each other certainly creates problems.

One interesting factor which is difficult to examine is the role of the shadow economy in Poland. According to the Polish Central Statistical Office, the share of the shadow economy of Poland's gross national product is some 20 % . About 365 000 Polish citizens are estimated to be working in the shadow sector, which accounts for about 4 % of the employed labour force. What would be the effect on official unemployment if the shadow economy could be at least partly uncovered? Gora points to this part of

**the economy by stating that a portion of the voluntarily unemployed may actually be employed in the shadow or "grey" economy.**

## **MASS UNEMPLOYMENT IN FINLAND: CAUSES, SPECIAL FEATURES AND REMEDY**

**by Tuire Santamäki-Vuori, Labour Institute for Economic Research**

### **1 Economic crisis in Finland**

After its good performance for most of the 1980s, the Finnish economy was hit by a severe recession in 1991. The slowdown was already on its way in early 1990, and in the next three years output dropped altogether by about 15 % - the steepest drop in any OECD country. The main factor behind the crisis was obviously a debt-induced collapse in demand in the domestic sector, although the depression was also exacerbated by external shocks: recession in the world economy, a collapse in exports to the former Soviet Union and a reversal in the favourable terms of trade development.

The process started with the deregulation of the financial markets in the mid-1980s, which set off a credit-led consumption and investment boom with a concomitant rise in asset prices. Monetary and fiscal policy failed to rein in the strong overexpansion of domestic demand, and the financial liabilities of both corporations and households increased rapidly. After the collapse in asset prices - which peaked in 1989 - the economic process has been dominated by attempts by the private sector to consolidate its balance sheets. More recently, with the devaluation and floating of the Finnish markka and the subsequent gains in price competitiveness, exports have grown sharply, even though economic growth in Finland's main export markets has been subdued. With the prolongation of the crisis, public sector expenditure has also been cut since 1992 to curb the ensuing growth of public sector indebtedness, reflecting the cost to the public budget of high levels of unemployment and the costs of the rescue operation for the banking sector. By late 1993 the boost received from increased exports has not been sufficient to offset the decline in domestic demand, however, and the fall in total output has not yet bottomed out.

As a consequence of the deep depression, expectations of a labour shortage, which were current in Finland not long ago, have been replaced within a short space of time by acute experiences of mass unemployment. The unemployment rate has risen nearly six-fold in just three years - reaching the second highest level in the OECD countries in 1993. This dramatic surge in unemployment, from about 3 to 18 %, contrasts with the relatively impressive labour market performance of the preceding three decades, when unemployment in Finland was generally 1 to 3 percentage points below the OECD average. Our inference is that Finnish unemployment at present is a consequence of huge job losses caused by the exceptionally deep economic depression - which is without parallel both on an international comparison and in Finnish economic history. So far structural factors like rigidities in the labour market or adverse effects of technological change have played a very secondary role in this process.

## 2 Changing patterns of unemployment

The sharp rise in unemployment has also involved some shifts in its incidence. Thus it is not only the pace of this change but also the pattern that has exhibited some striking and - in the Finnish context - very exceptional features. Compared to the previous unemployment peak in 1978, unemployment now affects a broader cross-section of the population. But in contrast to this equalizing tendency, there is perhaps an even more dominant tendency towards longer spells of unemployment which serve to inflict an increasing share of the burden of unemployment on the same people.

The exceptional background of the economic crisis is reflected in the substantial loss of jobs in all branches of industry (Table 1). Even though the labour-shedding started in the manufacturing and construction industries, by mid-1993 the service sector accounted for some 45 % of total job losses. With three years, the net loss has amounted to 448,000 jobs in the whole economy, i.e. 18 % of all employment at the beginning of the recession.

Table 1. Changes in employment by industry, 1990-1993

Industry	Percentage change from the previous year (second quarter figures)			Total change 1990-1993	
	1991	1992	1993	%	Absolute
Agriculture and forestry	-5.6	-4.3	-8.1	-17.0	-36 000
Manufacturing	-8.2	-11.6	-6.2	-23.9	-136 000
Construction	-10.5	-16.6	-15.5	-36.7	-77 000
Trade	-6.7	-9.5	-9.4	-30.6	-95 000
Transport and communications	-2.8	-5.6	-6.1	-13.7	-25 000
Financial and insurance	+0.3	-5.2	-6.5	-11.3	-27 000
Services	-0.8	-2.3	-4.7	-7.6	-53 000
Total	-4.7	-7.3	-6.9	-17.7	-448 000

Source: Statistics Finland, Labour Force Survey.

The sectoral patterns in employment changes have been associated with some shifts in the distribution of unemployment compared to the previous unemployment peak in 1978. In particular, the shares of service industries - both financial, insurance, real estate and business services as well as public, social and personal services - of total unemployment in 1992 were markedly higher than in the previous recession, with the same tendencies further reinforced in 1993 (Table 2).

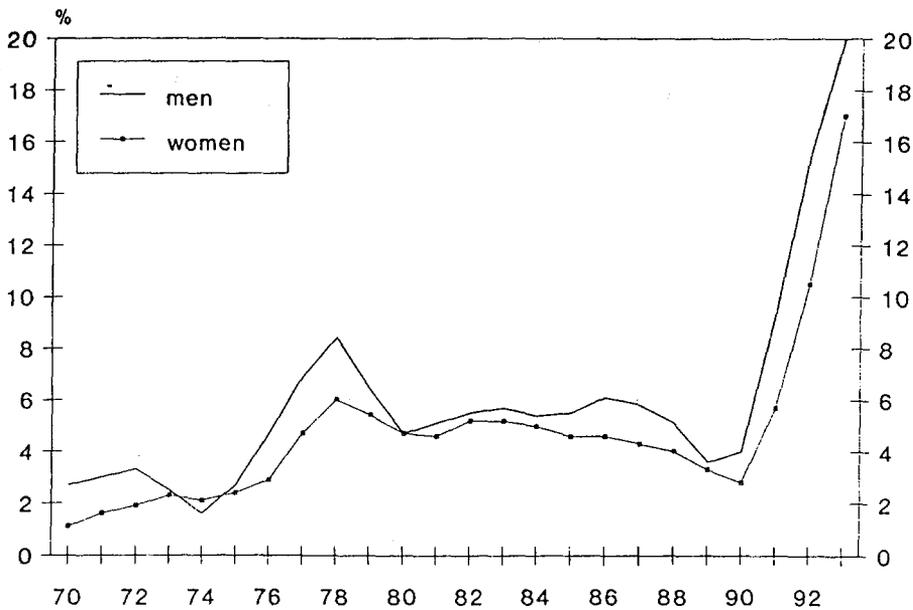
Table 2. Unemployment rates by industry in 1978, 1992 and the third quarter of 1993

Industry	Unemployment rate			Share of total unemployment		
	1978	1992	1993 IIIq	1978	1992	1993 IIIq
Agriculture and forestry	4.2	8.0	9.8	8.2	5.0	4.2
Manufacturing	5.7	12.9	15.0	20.3	20.4	17.0
Construction	14.4	28.4	32.0	17.4	18.0	13.7
Trade	5.7	10.1	14.9	11.0	11.1	12.1
Transport and communications	3.9	7.3	9.6	4.1	3.9	3.8
Financial and insurance	2.5	9.2	13.1	1.7	6.9	7.1
Services	3.5	8.2	13.1	11.0	18.2	21.2
Not previously employed or industry unknown	..	..		26.3	16.5	20.9

Source: Statistics Finland, Labour Force Survey.

The distribution of unemployment by industry obviously affects its incidence across different individuals by gender, age or educational qualifications. Figure 1 shows the development of female and male unemployment rates. The participation rate of the female labour force in Finland is one of the highest in the OECD countries and, moreover, about 90 % of employed women are in full-time jobs. Women have become a permanent and integrated part of the labour force, despite the persistence of occupational segregation and relatively low wages. In the early 1970s the unemployment rate of women was much lower than that of men, owing to the tendency to withdraw from the labour market during slack periods. But along with the better position of women in the labour market, the difference has narrowed and in the 1980s the average ratio of the female to male unemployment rate was about 0.87. At the beginning of the cyclical downturn this ratio declined, since job losses were concentrated in the cyclically sensitive manufacturing and construction industries. But with the deepening of the crisis, redundancies have increasingly hit female-dominated service industries and the difference has started to contract again. The rationalization of the public sector, in particular, will pose major challenges for female employment in the immediate future, since two thirds of public sector employees are women and in local government the proportion is three quarters. Female and male unemployment rates will approach each other - but unfortunately at a very high level.

Figure 1. Unemployment rates by sex, 1970-1993



Source: Statistics Finland, Labour Force Survey. The figure for 1993 is the writer's own estimate.

Unemployment affects young people disproportionately and the decline in economic activity generally results in a further deterioration in the relative position of young people in the labour market. There are several reasons why youth unemployment is more adversely affected by such a decline. Firstly, reductions in labour demand are initially transmitted through cuts in recruitment, which have a disproportionately adverse effect on labour market entrants. Secondly, young people usually have temporary jobs and fewer firm-specific skills, which increases their chances of being made redundant.

Developments in Finland have exhibited some striking patterns. In three years the number of employed under 25 has decreased by 44 %, compared with 13 % for prime-age adults and 15 % for 55-74 year-olds. In terms of employment, young people have been hit particularly hard by job losses. The relative unemployment rate has not shown a similar deterioration, however. Even though the unemployment rate for young people aged 15-24 has climbed to 33 %, the rate has not increased relative to adult unemployment (Table 3).

Moreover, a closer look shows that the position of young adults aged 20-24 has worsened slightly, but this has been compensated by the improvement in the position

of teenagers. The more favourable position of teenagers is partly due to the 1987 Employment Act, which made public authorities responsible for providing training or temporary jobs for youths under 20 if they have been unemployed for more than three months (six months from the beginning of August 1992). In 1993, with the amendment of the Employment Act, this statutory obligation was repealed for young people, too.

Table 3. Unemployment rate by age, 1972-1993

Year	Unemployment rate				Ratio
	15-19	20-24	15-24	25-54	15-24/25-54
1972	7.2	4.1	4.7	1.8	2.6
1973	6.3	3.8	4.4	1.7	2.6
1974	6.0	2.8	3.2	1.3	2.5
1975	7.4	4.3	4.2	1.7	2.5
1976	11.2	5.3	7.6	3.1	2.5
1977	18.7	10.1	13.3	4.4	3.0
1978	20.0	11.9	14.8	5.7	2.6
1979	17.3	8.4	11.5	4.8	2.4
1980	13.5	6.4	8.9	3.8	2.3
1981	14.5	7.0	9.7	3.8	2.6
1982	15.4	8.0	10.5	4.2	2.5
1983	16.6	8.9	11.4	4.2	2.7
1984	14.8	8.4	10.5	3.9	2.7
1985	14.1	7.7	9.7	3.9	2.5
1986	13.8	8.6	10.2	4.3	2.4
1987	12.3	8.1	9.4	4.4	2.2
1988	10.9	7.3	8.4	3.8	2.2
1989	8.3	5.6	6.5	2.8	2.3
1990	8.6	5.9	6.7	2.8	2.4
1991	17.1	13.4	14.5	6.6	2.2
1992	27.9	24.1	25.2	11.3	2.2
1993					
I-II qrs	34.6	31.7	32.5	15.5	2.1
1993					
III qr			32.7	15.7	2.1

Source: Statistics Finland: Labour Force Survey.

The different outcome in terms of employment and unemployment is attributable to a sharp drop in the participation rate of young people (the ratio of all persons in the labour force to the total population of the same age). A major reason for this drop is that students, who previously combined studies with paid work, have - owing to the lack of jobs - become full-time students again. The balance of the labour supply actually differs from the previous recession, with the differences partly accounted for by labour-shedding in industry and the age distribution of employment across industries. It is the labour supply of young people that has dropped drastically during

this depression, whereas in the late seventies new provisions were adopted to induce early retirement among older persons.

The unemployment pension scheme, introduced in 1971, was designed to facilitate the early retirement of the long-term unemployed approaching normal retirement age. As a counter-unemployment measure, the eligibility age of 60 was temporarily lowered to 58 in July 1978 and to 55 in 1980. Beginning in 1986, it was gradually raised so as to bring it back to the original level of 60 by 1990. By encouraging early withdrawal from the labour force, various schemes, including the early disability pension and early old-age pension introduced in 1986, have contributed to sharp drops in the labour-force activity of older people. For 55-64 year-old men, in fact, the labour-force participation rate of 43 % in 1992 was one of the lowest among OECD countries. But during the last few years this rate has not decreased markedly for older people, while the labour-force participation rate of young people aged 15-24 has dropped by more than 10 percentage points.

Regional disparities in unemployment rates have historically been large and persistent in Finland (exceeded only by Italy in the OECD area), with the northern and eastern parts of the country showing the highest rates of unemployment. In assessing the regional incidence of unemployment, one must observe the marked differences in regional population density - the population density per square kilometre decreasing from about 130 in Uusimaa (the southernmost county) to only five in sparsely inhabited northern Finland. Consequently, the workforce is very unevenly distributed across the country and in terms of absolute numbers unemployment is concentrated more in southern Finland than an examination of the unemployment rates would suggest. Moreover, reflecting the nature of recent labour shedding, unemployment is spreading to an ever-increasing extent to the southernmost districts of the country, where unemployment is hitting hard even those with a higher university education.

Disparities in unemployment rates across various levels of education have traditionally been even larger than regional disparities. During the recent downturn, however, unemployment has tended to grow more for people with better education. Hence the gap has narrowed, but unemployment still falls much more heavily on persons with a weak educational background. In 1992, the unemployment rate varied from 16 % for those with a basic education (about 9 years) to 5 % for those with a higher education (at least 14 years).

Despite the narrowing disparities in unemployment across various groups of people, the lengthening of spells of unemployment aggravate the general tendency to an uneven distribution of the unemployment burden. The proportion of long-term unemployed (12 months or over continuously) of total unemployment has been relatively low in Finland, averaging about 11 % in the 1980s (Table 4). In the European Community as a whole, almost half of the unemployed have been out of work for at least a year, and the rates are substantially higher in Italy, Spain, Belgium and Ireland. Strikingly enough, Finland experienced a temporary drop in the number of long-term unemployed in the late eighties. The economy was picking up at the

time, but more importantly, priority was given to the long-term unemployed in an active labour-market policy.

Table 4. Unemployed jobseekers (temporary lay-offs excluded) by the duration of the current spell of unemployment, as a percentage of total unemployed, 1981-1993

Year	Duration of the current unemployment spell				
	-12 weeks	13-26 weeks	27-52 weeks	53- weeks	Average
1981	53.0	21.6	14.4	11.0	24
1982	49.6	22.5	14.9	11.5	25
1983	47.4	22.0	17.3	13.3	27
1984	48.2	22.1	17.2	12.5	27
1985	48.7	23.2	18.0	10.2	25
1986	46.3	23.1	19.7	10.9	25
1987	47.3	22.4	17.5	12.8	26
1988	51.0	22.1	16.8	10.1	24
1989	55.5	22.3	15.5	6.6	20
1990	61.3	21.9	13.4	3.2	15
1991	54.0	26.4	16.8	2.7	16
1992	39.3	27.6	24.9	8.2	22
Oct.-93	30.8	23.3	24.0	21.9	34

Note: Older persons retired on the unemployment pension scheme are not included in the unemployment figures.

Source: Statistics from the Ministry of Labour.

The 1987 Employment Act (operative in high-unemployment regions since 1988 and in the whole country since 1990) obliged either the state or local authorities to arrange training or a temporary job for six months for the long-term unemployed. Beside those continuously unemployed for over a year, the provision also covered the recurrently unemployed whose spells of unemployment have amounted to 12 months during the two preceding years. The statutory placement obligation for the recurrently unemployed was abandoned in 1992 and the whole obligation was repealed at the beginning of 1993. The active labour policy measures resulted in the proportion of long-term unemployed dropping to a mere 3 % in 1990 and 1991. Thereafter, the proportion has risen sharply and will amount to over 25 % by the end of 1993. Long-term unemployment will be aggravated further and will become an entrenched problem in Finland, too. Without a determined policy emphasis on long-term unemployment, the proportion of long-term unemployed will probably amount to over 50 % in 1995. This is the situation that has prevailed in the European Community area since the mid-eighties, but with a concerted effort it can be averted in Finland.

In autumn 1993, Finland is balanced on a knife-edge between recovery and a deeper slump. It is hard to judge when the stimulatory effects of lower interest rates and the improvement in international competitiveness will be sufficient to counterbalance the

gloomy domestic prospects, the deepening European recession and the continued process of debt reduction in the private-sector. In any case, the prospects for an early reduction in unemployment are poor - or even non-existent. The challenge for labour-market policy thus remains how to cope with the huge unemployment total and prevent persistent large-scale long-term unemployment taking root in Finland.

### **3 Labour-market policy to tackle unemployment**

Historically, labour-market policies in Finland have been designed to sustain employment through active measures rather than passive income support. Until the 1960s, there was no state unemployment benefit system and unemployment benefits from vocational funds were insignificant, while local and central governments were committed to providing jobs for the unemployed through public works. The Employment Act of 1971 shifted the emphasis of labour-market policy in a supply direction by giving vocational training and the promotion of regional and occupational migration a much greater role in combatting unemployment.

In addition, along with the introduction of the unemployment pension in 1971, the coverage and benefit level of the unemployment compensation system were increased. In 1985, the unemployment insurance scheme became earnings-related, whereby the replacement ratio increased and allowances were subject to income tax.

The reorientation in labour-market policies in the 1970s did not, however, imply that the old emphasis on job creation programmes was totally displaced. In fact, selective employment measures (temporary public sector or subsidized private sector jobs) were substantially stepped up in response to the economic recession in the late 1970s.

New impetus was given to active labour market programmes by the 1987 Employment Act (operative in high-unemployment regions since 1988 and in the whole country since 1990), which reinforced the policy emphasis given to young people and the long-term unemployed. This Act committed central and local government as a measure of last resort - to providing either temporary jobs or training for young people under 20 years of age and for the long-term unemployed (after an unemployment period of three and 12 months respectively). In addition, the Act was intended to balance regional discrepancies so that unemployment in any district should not deviate essentially from the national average.

The statutory obligations were alleviated from the beginning of 1992 by abolishing the system whereby short spells of unemployment were counted together under the definition of long-term unemployment, and from August 1992 the qualifying unemployment period for teenagers was lengthened to six months. To alleviate the sharp rise in statutory job placements, the obligation to provide a temporary job was changed to apply only at the request of the unemployed person so entitled.

The statutory obligations to arrange training or work for the long-term and young unemployed were totally repealed at the beginning of 1993. However, young people

together with those at risk of becoming long-term unemployed will remain the main target groups of active labour-market policy.

When the statutory obligations were in force, active labour-market measures failed to achieve any exceptional scope in the Finnish context. At best in 1989, about 35 % of all unemployed jobseekers were either in training or employed with wage-related employment measures, a proportion comparable to that in 1980. Along with the growth in statutory obligations, discretionary measures were correspondingly cut (see Table 5 for wage-related employment measures) and the proportion of completed spells of unemployment terminated by active labour market measures rose quite moderately - from 21 % in 1987 to 26 % in 1992. It was the incidence of the measures rather than their scope that was mostly affected by the statutory obligations. The obligations had most effect in tackling the problem of long-term unemployment.

Table 5. Persons employed with wage-related employment measures, annual averages, 1987-1992

Year	Total	Discretionary placements	Statutory placements	Statutory, % of total placements
1987	35 672	35 672	0	0
1988	36 863	19 406	17 430	47
1989	34 481	10 396	24 085	70
1990	30 538	5 177	25 361	83
1991	40 137	5 165	34 972	87
1992	52 080	8 664	43 416	83

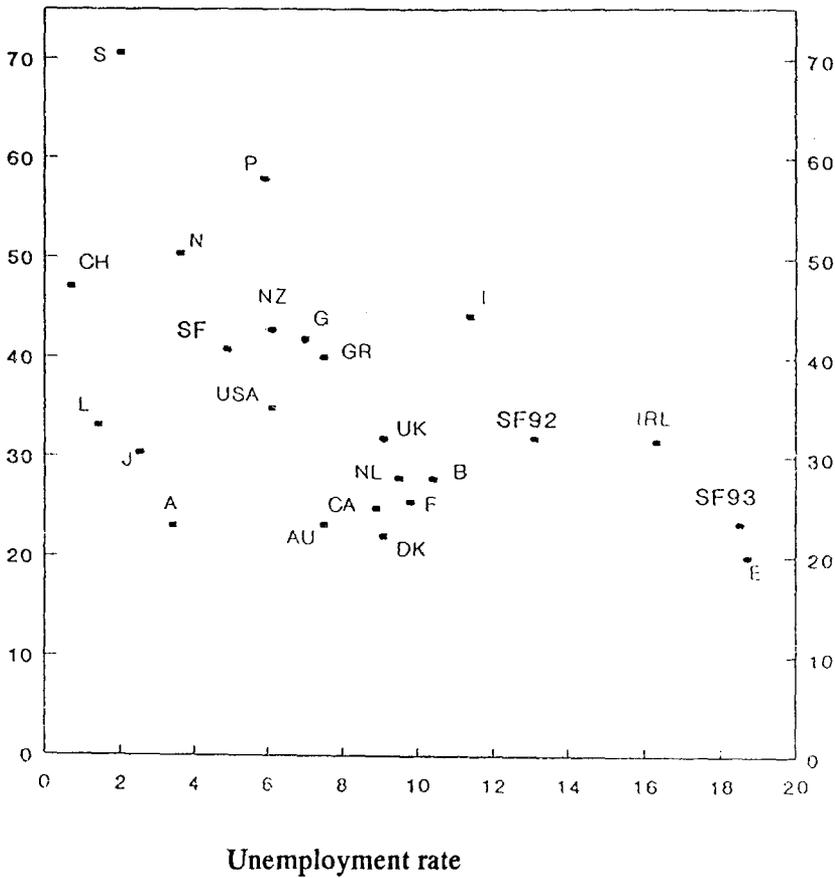
Source: Ministry of Labour, Employment Service Statistics.

In the late eighties active labour-market measures accounted for about 40 % of total spending on labour-market programmes (active measures + income maintenance). This proportion was close to the OECD average even though it was distinctly lower than in the neighbouring Nordic countries of Sweden and Norway (Figure 2). With the economic depression, however, the Finnish position in the international comparison has deteriorated considerably. In 1992, the proportion of active labour-market measures fell to 30 % and in 1993 closer to 20 %, similar to countries with the most passive policy stance.

The abolition of the statutory obligation to provide either training or temporary jobs for unemployed young people and the long-term unemployed has meant that from 1993 placements have taken place mainly discretianarily. This year, about 16 % of all unemployed jobseekers were either in training or employed with wage-related employment measures, less than half the corresponding share in the late eighties.

Figure 2. Public expenditure on active labour-market measures, as a percentage of total spending on labour-market programmes (active programmes + income maintenance) in relation to the unemployment rate in the OECD countries, 1985-1989 averages

Public expenditure  
on active measures,  
% of total spending on  
labour market programmes



Note: A = Austria, AU = Australia, B = Belgium, CA = Canada, CH = Switzerland, DK = Denmark, E = Spain, F = France, G = Germany, GR = Greece, I = Italy, IRL = Ireland, J = Japan, L = Luxembourg, N = Norway, NL = Netherlands, NZ = New Zealand, P = Portugal, S = Sweden, SF = Finland, UK = United Kingdom and USA = United States.

Source: Data from OECD (1992), pp. 91-103 and OECD (1993), pp. 73-78. The figure for Finland in 1993 (SF93) is the writer's own estimate.

Rather than active labour-market measures, a new emphasis has been put on the provision of part-time employment at the expense of full-time employment in order to provide job opportunities for a greater number of people. The proportion of part-time jobs of total employment has remained fairly stable over the past ten years. In 1992, 8% of all employed persons and 10 % of employed women worked fewer than 30 hours per week in their main job. On an international comparison, the figures are fairly low even if the definition of part-time work were extended to cover all those working under 35 hours per week.

The government's goal is that by the end of 1994 the number of persons working part-time will be substantially higher than at present. To this end, the government is planning legislative measures to make part-time work more attractive to employers and employees. In the short-term programme of employment objectives, part-time work will be promoted in co-operation with labour-market organisations both in the private and public sectors as follows:

- opportunities for part-time work will be increased as an alternative to layoffs
- new job openings will be filled with part-time employees
- transition to voluntary part-time work will be encouraged
- state support for companies may be made conditional on companies' introducing shorter working hours rather than laying off employees.

Even though the emphasis of labour-market policy shifted from active measures to income maintenance during the slump, the level of unemployment insurance benefits also was lowered and the waiting periods and qualifying conditions were tightened in 1993. Further reforms of the unemployment benefit system are planned to be brought into effect from the beginning of 1994. They would make unemployment assistance more similar to unemployment insurance by introducing a qualifying condition based on the recipient's employment record and also a maximum duration for assistance benefits.

#### **4 Urgent policy needs**

Finland has achieved a good reputation for economic dynamism and social welfare from its performance during the prolonged period of structural adjustment in the last few decades. Since the early nineties, the profound economic crisis and the accompanying unemployment rate of about 20 % in 1994 have begun to threaten the Finnish model of a social labour market that was emerging before the crisis.

In line with the general tendency in Europe to search for a new balance between employment protection and flexibility, much concern in Finland has focused on designing structural reforms that will contribute to greater labour-market flexibility. This policy emphasis reflects an interpretation of the economic crisis that attributes a considerable part of the current unemployment problem to inherent rigidities in the labour market. It does not, however, take any account of the differences in the nature of the unemployment problem in Finland and other western European countries where

high and persistent unemployment has prevailed since the early eighties. This policy emphasis also ignores the argument that it may be innovation, not flexibility per se, which is the crucial factor. If flexibility is to be a real factor, it must be enshrined within stable social institutions, giving rise to structural flexibility as in Japan. Without such a structure, flexibility can be economically disruptive. And most importantly, this policy emphasis has meant that, the urgent need to halt the growth in unemployment and break the sharp trend towards lengthening unemployment periods has tended to remain in the background.

It is clear that macroeconomic policy measures are of vital importance in determining the future trend of unemployment. We take the view that the key aim of economic policy should be to quickly break the depressionary spiral and stem the growth of unemployment. This can be achieved by carefully taking advantage of the greater room for manoeuvre provided by the improvement in the current account to increase domestic demand. Besides a determined lowering of interest rates and incomes settlements creating the conditions conducive to this, economic recovery should also be supported by fiscal measures. Moreover, active labour-market policy plays a central role in affecting developments in unemployment in the longer run. In order to fight the persistence of unemployment, these steps should be taken immediately.

It is obvious that the alarmingly high budget deficit and rapidly rising level of public indebtedness already impose a tight limit on public spending. However, we know from the experiences of western European countries that high and longer individual periods of unemployment give rise to hysteresis effects, i.e. unemployment is not reduced by demand increases to the same extent as unemployment rose in response to shortfalls in demand. Beneath this persistence phenomenon are the socio-economic forces that create long-term unemployment, and therefore high unemployment will leave traces on the labour market for decades after the original disturbance has vanished.

High and persistent unemployment will not only create individual and social problems to an extent hitherto unknown in Finland. It will also cause a tremendous welfare loss for society as a whole and make it very difficult to return to a reasonable degree of fiscal balance. It will reduce tax income by eroding the tax base and create new spending needs for labour-market policy and social purposes. Thus the vital issue now is to find an economic and labour-market policy stance that lays reasonable weight on both short-term and long-term needs.

Long-term unemployment is now rising so fast that no revival in economic activity will be sufficient to solve the problem. Moreover, special measures will be required in any case if the stock problem is to be addressed, because long-term unemployment is to some extent irreversible; removing the causes that led to unemployment is not sufficient to improve the chances of those people finding a new job after a long period of joblessness. Instead of surrendering and making substantial cuts in active labour-market policy funding, we need more money for targetted policy measures - counselling, training and the provision of temporary jobs.

In planning these selective measures it is important to note that the long-term unemployed in Finland are not typically older people waiting to withdraw from the labour market. Half of them are aged 25-44 and less than 2 % over 60. The age structure is becoming younger still, since about 70 % of those who have now been unemployed for 6 to 12 months are under 45 years of age. The benefits of successful manpower policy measures - as well as the costs of current shortcomings - will therefore be evident for a long period of time. In the short run, the measures should be judged by their ability to ensure that unemployed people can be helped to keep in touch with the labour market, and to compete effectively within it, rather than by their effectiveness in reducing the overall level of unemployment.

It is important to stress, however, that measures taken in the short term in different fields of economic and social policy should be in line with the medium-term development strategy of the Finnish economy. This is the choice that Finland is now confronting - the choice between high-skill and low-wage strategies.

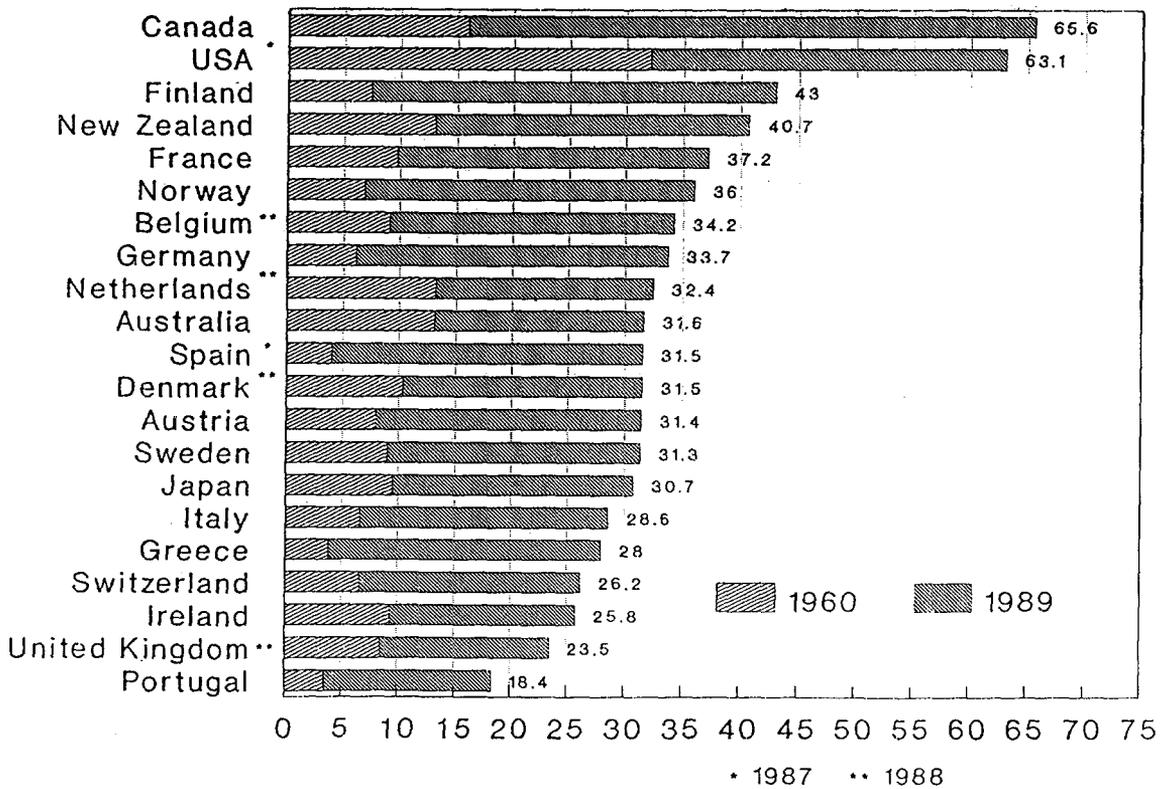
Experience in other countries suggests that under circumstances of intense international competition the most successful countries have been those that have learned how to absorb new technologies efficiently and to adapt to the changing structure of global demand by quickly moving away from specializing in low-wage and low-technology products. Finland is well placed to succeed with the high-skill strategy. The level of educational attainment of younger age groups is among the highest in the world (Figure 3), the diffusion of information technology has been very rapid in Finnish industry and the share of high-tech products of Finnish exports has more than trebled in just ten years, and last year the relative proportion was similar to that in Sweden and Germany. The realistic option - and the best route - for Finland, therefore, is to take a forward-looking policy stance by embracing rather than resisting structural change - to invest in adaptive and innovative capacity.

Such a perspective reinforces the need to focus policy efforts on ensuring that all members of society are kept informed. Otherwise we risk producing a society extremely polarized in terms of incomes, skills and job opportunities. The important task is therefore to engage in large-scale efforts to upgrade the qualifications of the whole work force - both the employed, the unemployed and those who have yet to enter the labour market. Then the issue is whether it is possible to develop strategies which both reduce unemployment in the short run and enhance human resources in the long run. It is my view that these opportunities are far from negligible.

The changes taking place in working life highlight the importance of continuous adult education. Higher requirements for cognitive skills, the ageing of the labour force and great disparities in educational attainment across different age groups in Finland call for enhanced efforts in the field of adult training. By increasing adult education and encouraging employed persons to engage in systematic retraining, it would be possible to promote job rotation and provide job opportunities for larger numbers of people. Rather than concealing and diverting unemployment into a more even layer of hidden unemployment, these kinds of work-sharing measures would also serve the

primary need of enhancing human resources in the long run and hence the successful performance of the Finnish economy.

Figure 3. Enrolment rates in higher education, as a percentage 20-24 year-olds, in various countries in 1960 and 1989



Source: Yearbooks of UNESCO in 1968 and 1991

# **PERSISTENT UNEMPLOYMENT - ASPECTS OF THE DANISH EXPERIENCE**

by **Peder J. Pedersen, University of Århus**

## **1 Introduction**

Until recently the Danish labour market was in an intermediate position between a Nordic and a more Continental model. The high participation rate of married women and the high proportion of public sector employment are characteristics found in the other Nordic countries. On the other hand, unemployment is at a level close to the EC average, i.e. much higher than in the other Nordic countries until the end of the 1980s. As is well known, the rate of unemployment has gone up sharply since 1990 in the other Nordic countries, especially in Finland. In Sweden too, unemployment is currently at a much higher level than ever before in the postwar years.

The purpose of the present paper is to study some aspects of the Danish experience of high unemployment lasting for many years. Identification of specific problem areas related to the cumulative build-up of high and persistent unemployment is of potential interest to the other Nordic countries in order to reduce the human and social costs arising from the recent phenomenon of sharply increased levels of unemployment.

In the following, Section 2 presents some background information on the development of unemployment in Denmark from a level below 20,000 people in the best years of the 1960s to the current level of around 360,000 people. Of special interest in a cross-country context is the very steep increase in unemployment in the second half of the 1970s and the persistently high, but volatile level throughout the 1980s. As a result of many years of high unemployment, evidence is available, based on longitudinal data of the incidence of unemployment over time and of the very important topic of history dependence in the individual experience of unemployment<sup>26</sup>. The main evidence in this area comes from the longitudinal database developed by the Centre for Labour Economics, Århus School of Business and University of Århus covering the years 1976 - 1990 and from a longitudinal sample covering the years 1981 - 1989 analysed by the Danish Social Commission<sup>27</sup>. Section 3 presents some of the main results of the longitudinal studies made by the Social Commission into the incidence of unemployment and history-dependence in the 1980s. Section 4 presents the main policy recommendations of the Social Commission aimed at bringing down the level of structural employment. Finally, Section 5 presents some concluding comments. In the present context, the most relevant conclusions would obviously be those that could

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<sup>26</sup> In the present context the concept of history-dependence is used as a common term for different types of intertemporal individual unemployment dependence, i.e. duration-dependence, lagged duration-dependence and occurrence-dependence.

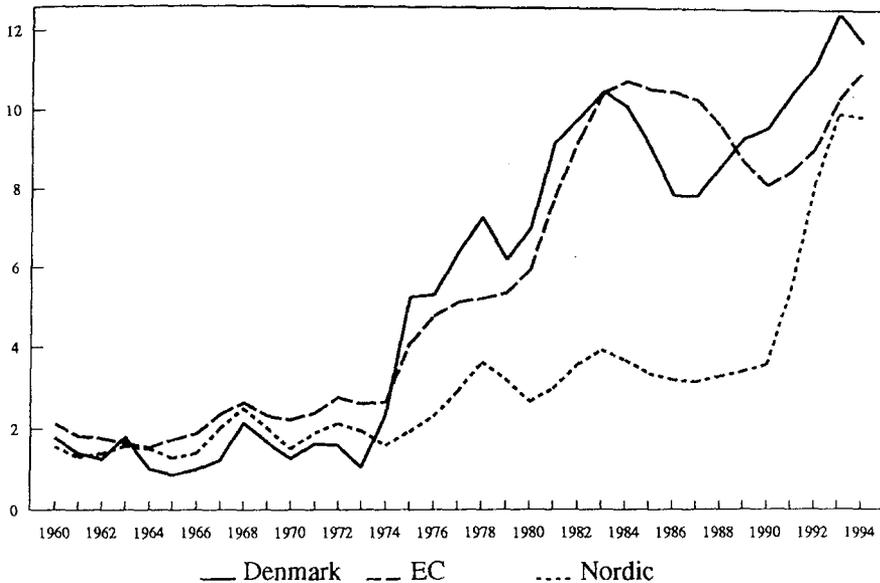
<sup>27</sup> A description of the Århus longitudinal database can be found in Westergård-Nielsen (1984) Data and results from the longitudinal sample used by the Social Commission can be found in a number of publications of the Commission and its Secretariate, cf. the references at the end of the paper.

help avoid or reduce some of the negative consequences of high unemployment over a long period.

## 2 Unemployment in Denmark - development and background

The aggregate rate of unemployment in Denmark since 1960 is shown in Figure 1 along with the unweighted average rates in the other Nordic countries and in a number of EC countries<sup>28</sup>.

Figure 1. The rate of unemployment in Denmark and the unweighted average rate of unemployment for the other Nordic countries and a group of EC countries (Source, OECD, 1993)



Until 1973 unemployment was extremely low in both Denmark and the two groups of reference countries. Subsequent to the first oil price shock in 1974, unemployment in Denmark rose more steeply than in both the other Nordic and the EC countries. In the 1980s the profiles differ, i.e. the Danish recovery ended in 1986 at a time when recovery was underway in the other EC countries and in most of the OECD area. The other Nordic countries - as is well known and much discussed in the literature - experienced a comparatively low level of unemployment throughout the 1980s<sup>29</sup>. From 1990 recession set in everywhere and especially so in the other Nordic

<sup>28</sup> The Nordic countries are Finland, Norway and Sweden. The EC countries are West Germany, France, Italy, UK, Belgium and the Netherlands.

<sup>29</sup> See especially the cross-country analyses and discussions in Layard et al. (1991).

countries<sup>30</sup>. Finally, the projected 1993/94 levels of unemployment do not differ much between Denmark and the two groups of reference countries.

As a background to the discussion of some characteristics of the profile of unemployment in Denmark, Table 1 presents the results of two simple Okun-type regressions on the period 1961 to 1993. Based on these regressions, zero growth in the economy seems to imply an increase of one percentage point in unemployment, and keeping unemployment from rising seems to demand a rate of growth ranging between 3 and 4 %. These conclusions are tentative as the degree of explanation in the regressions is not impressive.

Table 1. Okun regressions, Denmark. 1961-1993 (dependent variable is the absolute change in the rate of unemployment)

Constant	$\gamma$	$\gamma_1$	R <sup>2</sup>	DW
0.9495 (5.52)	-0.2293 (-5.02)	-	0.448	1.47
1.2750 (6.45)	-0.2280 (-5.32)	-0.1168 (-2.759)	0.554	1.46

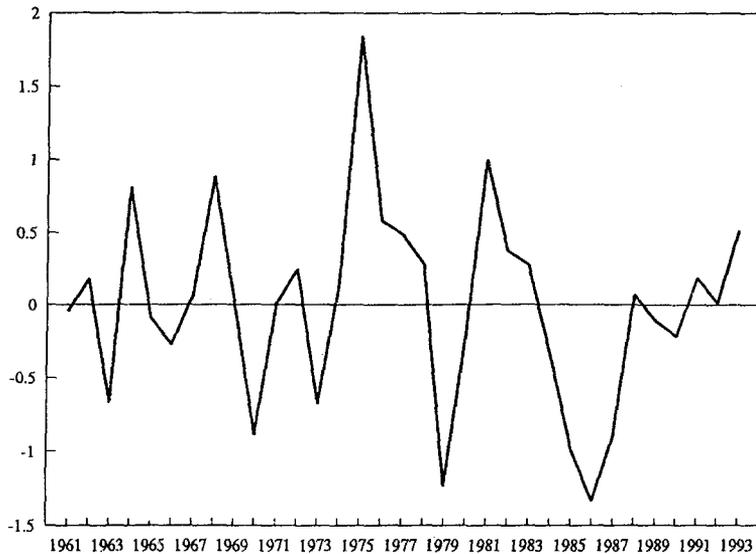
Note:  $\gamma$  is the relative change in real GNP, t-values in parentheses.

The residuals from the first of the regressions shown in Figure 2 illustrate some episodes where unemployment has "overreacted" relative to growth. The first such episode occurs subsequent to the first round of increasing oil prices in 1974 as unemployment in 1975 increases much faster than predicted by the Okun regression. The second episode is in 1979 as unemployment decreases much more than expected. The explanation is simple in this case as a programme of early retirement was introduced in this year in response to labour market pressure. Finally, the last episode occurs around 1986 when unemployment decreases much more than justified by the rate of growth in the mid-1980s.

The rapid increase in unemployment in the second half of the 1970s was due to a number of factors. Well before the first oil price shock, international wage competitiveness had deteriorated and had been accompanied by a persistent balance of payments deficit. As a consequence, policy options were restricted when the oil price shock hit the Danish economy, at that time completely dependent on imported energy.

<sup>30</sup> In the case of Finland - as is well known - a structural export shock reinforced the impact of the general OECD recession.

**Figure 2. Residuals from unemployment regression, 1961-1993**



Shortly before the OPEC shock, a general election had resulted in a rather chaotic parliamentary situation which further restricted policy options. The reactions in the labour market were highly inappropriate. In spite of the big decrease in terms of trade, real wage costs increased very strongly as the combined result of excess demand during the 1972/73 boom and the widespread use of indexation. The resulting severe deterioration in competitiveness was reinforced by the exchange rate policy where the "currency snake agreement" tying the Danish currency to the Deutschmark resulted in currency appreciation coincident with the highly inflationary reactions to the trade shock. The outcome, not unexpectedly, was the strong increase in unemployment shown in Figure 1.

Economic policy in the first years of rising unemployment was of a stop-go character. An experiment in temporary expansionary fiscal policy in 1977/76 was terminated as it was realized that a general OECD return to full employment was not about to happen. For the remainder of the 1970s attempts were made to engineer aggregate demand away from mainly private-sector activities with a high import content and low employment generation towards mainly public-sector activities with a low import content and a high employment generation. In the longer run this strategy failed. In principle, it is of course possible to shift the composition of demand in a way that increases employment and at the same time improves the current account. The main problem in such a strategy is the derived need to increase the tax/GNP ratio or to accept an increasing public sector deficit. The outcome was predominantly the latter of these scenarios, resulting in a critically high public sector deficit as the second oil price shock hit the economy in 1980.

In terms of unemployment, the main consequences of the policies of the 1970s were the rapid increase in public-sector employment and the introduction of an early retirement scheme in 1979. The popularity of this scheme was much greater than expected. The number of participants in the scheme - restricted to insured workers aged between 60 and 66 - stabilized around 100,000 and resulted in a steep decline in the participation rate of older workers. In the short run this scheme resulted in a decrease in unemployment, appearing as the big negative residual in 1979 (see Figure 2). In the long run a supply reduction of this type has much more uncertain effects on unemployment. Calculations made with Danish Economic Council's SMEC model show that the long-term impact on unemployment from a reduction in the labour supply is only 20 % of the reduced supply. Employment in the long run decreases by about 80 % of the supply reduction, cf. the Social Commission, 1993, pp. 59-61.

From 1979 macroeconomic policy was changed. A number of devaluations were enacted between 1979 and 1982. Indexation in the labour market was changed, creating more immunity to external inflationary shocks. As the second OPEC shock hit the economy in 1980, increases in energy prices were excluded from the wage-regulating price index. In 1975 the indexation system had been changed from one of percentage regulation to one where everyone was compensated by the same absolute amount when price increases passed threshold levels. The overall effect of this change of strategy was significantly improved international competitiveness. The partial effect of this was to cushion employment against the full impact of the second oil price shock. The net effect was nevertheless an increase in unemployment from 160,000 in 1979 to a level of 280,000 in 1983.

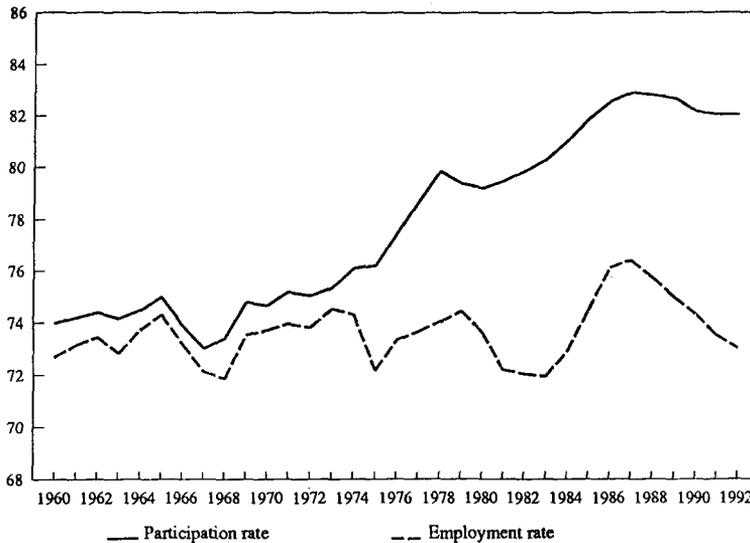
In late 1982 the social democratic government resigned in a mood of despair and conservative-liberal-centre coalitions took over for the next ten years<sup>31</sup>. The change of government implied a change of regime in economic policy. A fixed exchange rate and a private sector strategy was declared. Over the next ten years the first part of the strategy succeeded much better than the second. The remaining indexation of wages was suspended and in 1986 formally removed<sup>32</sup>. In 1983 interest rates fell to half the 1982 level of slightly above 20 %. Private consumption increased strongly as did investments, induced by a wave of positive expectations. As a result, unemployment declined significantly for the first time since 1973 from a level of around 280,000 in 1983 to a level of around 220,000 in 1986/87. As illustrated in Figure 3, this was due to a very strong increase in employment, corresponding to about 150,000 jobs, as participation in the labour force also rose rapidly.

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<sup>31</sup> The sombre mood of those days was summed up by the minister of Finance in the resigning social democratic government who declared that the Danish economy was on "the brink of abyss".

<sup>32</sup> It is interesting to note that no major political party or labour market organization has wished to re-introduce indexation.

Figure 3. Participation and employment rates, 1960-1992



The years from 1983 to 1986 are especially interesting as they are the only period of sustained growth since 1973. Long-term unemployment also went down in these years, but mainly as a result of interruption of spells of unemployment for people who in this way avoided becoming long-term unemployed. This is discussed in more detail in the next section based on results from the longitudinal study by the Social Commission that found a relatively small impact from the expansion in employment on those who were already long-term unemployed before the period of growth started.

It was shown in Figure 2 that in the mid-1980s boom unemployment fell much more than expected from the Okun regression. It is evident from Figure 3 that the explanation is not to be found in the supply side of the labour market. What happened was that labour productivity - and total factor productivity too - actually decreased in the mid-1980s. The reasons for this have been widely discussed. Productivity growth in Denmark - as in most other OECD countries - had been on a decreasing trend since the late 1960s. The specific phenomenon in the Danish case is the actual fall in productivity. Some of the main explanatory factors of the mid-1980s experience seem to be a combination of a shift in the trend in relative factor prices along with extremely high capacity utilization in 1986.

Two main factors explain the end of the employment expansion and the resumed increase in unemployment going up to a postwar record high level of 360,000 people estimated for 1993. The first factor was a major contractionary change of fiscal policy as a reaction to the deficit in the current account reaching a critically high level in 1986<sup>33</sup>. The other factor was the endogenous reactions in the labour market. In spite of

<sup>33</sup> The current account had - almost without exception - been in deficit for 25 years. As a result of this and the increase in real interest rates the net foreign debt to GNP ratio had become critically high at a level of about 0.40.

unemployment still being above 200,000, wage increases accelerated and collective agreements entered into in the beginning of 1987 stipulated annual increases of 10-12%, which of course were quite out of line with exchange rate policy.

The mid-1980s experiences of endogenous wage reactions forced the recognition of a very important consequence of many years of high unemployment, i.e. that the NAIRU or the level of structural unemployment had accompanied the increase in actual unemployment<sup>34</sup>. Estimates in the late 1980s made by the OECD and the Ministry of Finance found a NAIRU level about 6-8 %. The most recent estimate (Ministry of Finance, 1993) is a level of 9 %.

Since the 1986/87 labour market experiences, the Danish debate on labour market policies has largely been directed towards instruments and schemes to lower the level of structural unemployment. The debate has centred on three main areas. The first is the provision of unemployment insurance. In Denmark unemployment insurance is provided by union-related funds with the state carrying the residual financial risk and at present covering about 70 % of total benefit expenditure. Policy discussion in this area has centred on the financing of benefit expenditure in ways that would shift all or part of the financial risk so as to create incentives for higher wage flexibility. Since 1988 policy proposals have been discussed and analysed by the Economic Council (1988), the Ministry of Labour (1989), and government commissions, the Zeuthen Commission (1992), and the Social Commission (1993). The most recent proposals of the Social Commission are discussed in more detail below.

The second area concerns policy proposals to increase labour market flexibility - reducing the NAIRU - through a strategy of training and education directed primarily at the still relatively large proportion of the labour force that is without any formal vocational education. Training and education also form part of the third area which is a strategy to shift priorities in labour market policy towards more emphasis on active instruments. Traditionally, unemployment benefit has been a dominant area of expenditure in Danish labour market policy. Compensation, especially for workers on low wages, has been fairly generous and the maximum duration of benefits has been long. As long-term unemployment increased from the end of the 1970s, an increasing number of people approached the end of benefit eligibility. The first reaction to this was to suspend the maximum duration rule. Next, new instruments were developed for those who had come to the end of their benefit eligibility period. The main instruments were a temporary job offer, a training offer or a subsidy for the first period of self-employment. The optimal outcome would of course be re-employment in a new permanent job. The actual outcome in most cases was a return to unemployment. The side effect of this new and more active line in labour market policy was that benefit eligibility was re-established for a further 2.5 years through the acceptance of a job or training offer. At the end of a second spell of unemployment of the maximum duration of 2.5 years, people are eligible for a new round of offers, once again re-establishing benefit eligibility. As a result, people can remain in the labour market system for a maximum period of about nine years without being in an ordinary

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<sup>34</sup> In the case of a small open economy the most adequate definition of this critical level of unemployment is that level which is consistent with a non-deteriorating level of international competitiveness.

job<sup>35</sup>.

A labour market reform will be introduced in January 1994 which will reduce the maximum period in the benefit-activation system to seven years. At the same time a rotation system will be enacted where people in work can take leave for a period on unemployment benefit or a proportion of the benefit, depending on the purpose of the leave of absence.

The main problem with the gradual shift to a more active labour market system with the aim of reducing long-term unemployment is the financial costs. Expenditure on passive income compensating benefits had already increased sharply before the need for more active elements was realized. The combined effect is that Denmark has the highest level of labour market expenditure relative to GNP in the OECD countries.

The actual pattern in the labour market since 1987 has been one of steadily increasing unemployment, cf. Figure 1. Until 1990 exports were the only expansionary element in the economy. Since then, exports have also stagnated due to the recession in most OECD countries and the effects of an appreciation of the Danish currency.

Overall, unemployment is the main economic and social problem, as other indicators show a fairly positive development, cf. Table 2.

Table 2. Macroeconomic indicators. Denmark and average values for trading partners, 1993

	Denmark	Average values for trading partners <sup>1</sup>
Current account surplus, % of GNP	3.1	-0.4
Public sector deficit, % of GNP	-4.4	-6.6
Rate of wage increases, %	2.1	3.5
Unemployment relative to the labour force <sup>2</sup>	10.4	9.1

Notes: 1. Weighted by the trade weights used to construct the effective exchange rate index of the Danish currency

2. Standardized unemployment rates. Very short spells are excluded

Source: Fiscal Report 93. Ministry of Finance. Budget Department.

The current account has been in surplus since 1990 and net foreign debt is declining quite rapidly. The public sector is in deficit, but the relative size of the deficit is smaller than the average in other countries. Finally, inflation is among the lowest in the OECD area. A tax reform has been enacted to come into effect from January 1994. This, along with other elements, implies an expansionary fiscal policy for 1994. The

<sup>35</sup> For this reason critics have claimed that one of the main functions of this system of activation is that of a "benefit-generator".

big remaining problem, as already mentioned, is unemployment, which has been on an increasing trend for nearly 20 years. Evidence of some of the effects of high and increasing unemployment over such a span of years is presented in the following section, which builds on the longitudinal studies carried out by the Social Commission.

### **3 Long term consequences of unemployment**

The Social Commission was appointed in late 1991 and will complete its work in late 1993. Compared to other government commissions, the Social Commission has been unconventional in that it consists of seven independent members that do not represent the organizations and interest groups that normally participate in this type of analysis and has submitted policy proposals. The agenda for the commission has been very broad, i.e. to examine and analyse a broad range of problems related to all kinds of income transfers from the public sector. Next, its brief has been to submit proposals in this very broad area are aimed at shifting the emphasis to more active measures and away from transfers aimed merely at sustaining the recipient. More specifically, these proposals should contribute to making the system of income transfers more transparent, consistent and simple. Also on the agenda was the financing of income transfers and problems in the area of income transfers related to the European integration process.

The work of the commission was structured via a life-cycle approach, i.e. the analysis and the submission of policy proposals were performed separately for young people up to 25, for the group between 25 and 59, and for those aged 60 and above. In the present context the main interest lies with unemployment. The following is therefore an attempt to extract from the commission's work that which seems of greatest interest in relation to unemployment. Some of the main findings in relation to unemployment were the following, to be discussed in more detail below:

- the decisive importance of unemployment in the development of public sector income transfers,
- the major role of education in influencing the risk of becoming unemployed,
- the importance of the age-wage profile for young workers on entry into the labour market,
- the polarization and marginalization occurring in the labour market during periods of persistently high unemployment,
- the extremely high history-dependence in individual labour market experiences,
- the importance of initial conditions at the time of entry into the labour market,
- effects contrary to prior expectations from the employment expansion in the mid-1980s.

As to the first of these points, public sector income transfers have increased rapidly in the last decades, both in absolute terms and relative to GNP. Part of this is due to an increasing share of the population being older than 66 and thus eligible for the

national old age pension. Another reason is an increase in educational benefits and transfers to families with dependent children. Nevertheless, the majority of the increase in income transfers results from the direct and indirect expenditure connected with the long-term increase in unemployment.

In the following we shall look first at the age group up to 25 years and next at those in the middle age group between 25 and 59 years. The purpose is to highlight some of the main conclusions found in a panel study of the unemployment experience of these age groups in the 1980s.

### 3.1 High unemployment and entry into the labour market

The most important conclusions regarding the unemployment experience of young people between 15 and 24 in the 1980s are the close relationship between education and unemployment and the consequences of the big jump in the minimum wage from the age of 17 to 18.

As regards the relationship between unemployment and education, the interesting conclusion is the decisive influence of education. Table 3 shows the rate of unemployment by age and education in the upper panel and the proportion of each age-education group affected by unemployment in 1989 in the lower panel.

Table 3. Rate of unemployment and proportion affected by unemployment, people aged between 15 and 24 in the labour market in 1989. (%)

	Age				Total
	15-17	18-19	20-22	23-24	
<b>Rate of unemployment</b>					
No education	1	14	20	23	18
Vocational training	-	7	10	10	10
Theoretical education	-	6	6	8	8
Total	1	13	15	15	15
<b>Share affected by unemployment</b>					
No education	7	45	52	55	50
Vocational training	-	33	38	35	36
Theoretical education	-	40	25	32	30
Total	7	44	45	43	43

Source: Social Commission, 1992, 1, Tables VI.3 and VI.4.

Looking at the upper panel of Table 3, it appears that the rate of unemployment was 2 to 3 times as high among those without a formal education as among the group with a theoretical education. Note also that the rate of unemployment increases with age from age groups 18-19 to 23-24. The same pattern is found in the lower panel of Table 3. The relative differences are smaller in the lower panel, indicating that the differences between unemployment rates illustrated in the upper panel are primarily due to differences between the average duration of unemployment for the age-education groups.

Looking at the years 1981-1989 for one generation of young people, those aged 25 in 1989, the experience of unemployment by education is shown in Table 4.

Table 4. Duration of unemployment 1981-1989 for those aged 25 in 1989 by education

Education	Unemployment in months				
	None	1-6	7-12	12-22	Above 24
Primary school	12	17	12	22	38
Gymnasium	26	32	13	15	15
Vocational basic	16	18	14	23	29
Vocational completed	30	36	14	14	6
Theoretical education	27	49	13	9	2
All 25 years old	28	30	13	15	14

Source: Social Commission. 1992. 1. Table V.3.

It can be seen from Table 4 that education is of special importance in relation to long-term unemployment, defined as more than two years of unemployment during the nine years covered by the table. The incidence of short-term search unemployment, one to six months, is seen to be highest among those with a vocational or theoretical education<sup>36</sup>.

One of the most striking facts from Table 4 is that 72 % of 25 year-olds in the labour market in 1989 had spent some time in unemployment during the preceding 9 years. Based on a longitudinal 10 % sample it has been possible to analyse this very high incidence of unemployment using different approaches. We shall summarize the results of three such approaches, all with the purpose of studying the extent of history-dependence in unemployment<sup>37</sup>.

<sup>36</sup> Eligibility for unemployment benefit at a reduced entry level may be obtained by joining an unemployment insurance fund on completion of studies lasting at least 18 months.

<sup>37</sup> More precisely the results refer to history-dependence in terms of either unemployment or welfare benefit.

The first of these approaches identifies a group of young people who received unemployment or welfare benefit for more than a month in 1981 and follows this group up to the end of the decade. The second approach faces the problem from the other direction: labour market experiences of the preceding years are analysed for a group of young people, 25-30 years old in 1989, who received unemployment or welfare benefit for more than a month in 1989. Finally, the third approach identifies a group entering long-term unemployment, defined as the receipt of unemployment or welfare benefit for at least six months in 1983. As mentioned above, the period is 1981-89, so 1983 is selected in order to restrict the group to those with little or no unemployment history under one month in 1981-82 and who become long-term unemployed in 1983. This group, with its initial close association with employment, can then be followed through the years 1984-89.

The first approach finds that 23 % of the group of 18-20 year-olds in 1981 received unemployment or welfare benefit for more than one month in this year. For the whole period 1981-89 this group is unemployed for an average of about 27 months<sup>38</sup>. All the 18-20 year-olds in 1981 are unemployed for an average of 13 months in 1981-89. The conclusion is either a strong history dependence with subsequent labour market status heavily dependent on the initial status, or selection as early as the age of 18-20 years. Just under one third of the high unemployment group in 1981 are unemployed for more than three years between 1981-89. Of the age group as a whole in 1981 only 10 % are unemployed for more than three years between 1981-89. Women and those without vocational training are clearly overrepresented in the initial high unemployment group. The overrepresentation of women is not for reasons of education, as of those with high initial unemployment women are overrepresented in all educational groups. In conclusion, there is a strong positive relationship between the initial and subsequent unemployment of young people in the 1980s. The exact mechanism has not been brought out in the present descriptive analysis, however.

In the second approach those aged between 25 and 30 in 1989 and receiving unemployment or welfare benefit for more than one month in this year are traced back to 1981. This criterion captures 27 % of the age group. The results are parallel to those in the first approach, i.e. the group selected has on average been unemployed for about twice as long between 1981-89 as the average for all 25-30 year-olds in 1989. This incidence is also parallel to the finding of the first approach, i.e. a lack of education is a very important factor in explaining this difference. About half the people in the group selected are unemployed for more than two years between 1981-89<sup>39</sup>.

Finally, the third approach, as already mentioned, identifies a group of young people who became long-term unemployed in 1983 after having a strong attachment to employment in the two preceding years. The group is selected from the population aged between 15 and 25 in 1981. About 1 % of the men and 13 % of the women in the relevant age group are captured by the chosen criteria. In 1984 and subsequent years

<sup>38</sup> Social Commission, Documentation 1, 1992, p. 48.

<sup>39</sup> Note that nobody can reach the theoretical maximum of receiving unemployment or welfare benefit for 108 months as young people qualify for a job or educational offer of a certain duration after 12 months of unemployment.

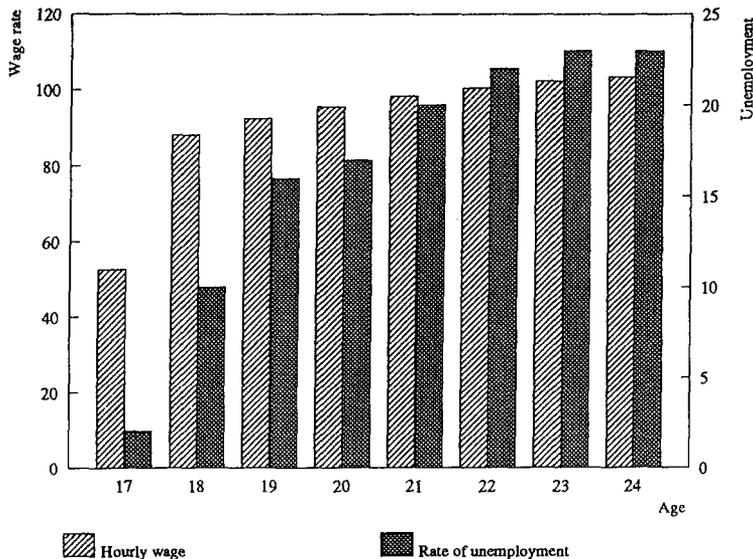
people are classified as still belonging to the initial 1983 group of long-term unemployed if they are unemployed for more than four months in each year<sup>40</sup>. Using this criterion, one third of those entering long-term unemployment in 1983 are only in that state for that one year. The transition rate out of long-term unemployment shows a negative duration-dependence and is lower for women than for men. About 10 % of the initial 1983 population are still in long-term unemployment in 1989. Of those who leave long-term unemployment subsequent to 1983, a significant number return one or more times to long-term unemployment. Finally, it should be emphasized that the findings reported here only show the resulting situation for one generation of "starters" in long-term unemployment and that a new generation of long-term unemployed young people enters the system each year.

Low education and a history of unemployment for a longer period at the time of entry into the labour market are two important factors in the labour market experience of young people during a decade of high unemployment. Another obstacle on entry into the labour market seems to be the high minimum wage for unskilled adult workers effective from the age of 18. Figure 4 shows the average hourly wage rate for unskilled workers in 1990 for the age group between 17 and 24. Figure 4 also shows the rate of unemployment of unskilled workers in the same one-year age groups for 1989. The big jump in wages - 67.9 % - between 17 to 18 year-olds seems to be part of the explanation for the big jump in unemployment. The wage rate increases further from 18 to 24 years and a parallel profile is seen for the rate of unemployment. The relationship in Figure 4 could be spurious as not many enter the labour market at the age of 17 while the entry rate is high for 18 year-olds. To allow for this, the panel data is used to calculate the average rate of unemployment at ages 17, 18 and 19 for those who were in the labour market at all three ages between 1984-89. These average rates were found to be 2,9 and 14 % respectively, i.e. only marginally different from the profile in Figure 4. The tentative conclusion is that a steep increase to the full adult unskilled wage is part of the explanation for the employment problems of young unskilled workers in the 1980s.

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<sup>40</sup> The lower time limit in subsequent years is due to the existence of different short-term activation offers that do not change the fundamental labour market status of the person if he or she returns to unemployment.

Figure 4. Average hourly wage and rate of unemployment of unskilled workers by age, 17 - 24 years. (Source: Social Commission, Documentation 2, 1992, Tables 111.3 and 111.4)



### 3.2 High unemployment - experience of the 25 - 59 year-old group in the 1980s

The 1980s are characterized not only by a high level of unemployment but also, as shown in Figures 1 and 2, by a period of very high growth in employment in the middle of the decade. In a longitudinal context, these characteristics make the 1980s a highly interesting decade for a study of the labour market experience of the age group that should have established a firmer attachment to the labour market at the beginning of the period. This presumption is modified by the fact that unemployment had been on an increasing trend for seven years prior to 1981 and that a strong increase in the participation rate of married women occurred up till the middle of the decade. Nevertheless, compared to the group of young people discussed above, a majority of the age group aged between 25 and 59 entered the decade with a much firmer attachment to the labour market. The present section summarizes results from the longitudinal study made by the Social Commission of the experiences of the core age group with special emphasis on movements between insider and outsider status in the labour market, and on the effects of the employment expansion in the mid-1980s.

The study is based on a 10 % random sample of the population. The actual calculations are based on a 10 % random sample of the master sample. For this, sample information based on registers is available on a number of demographic, labour market and income variables, including the receipt of different forms of

transfer incomes. The analysis is based on a distinction between six different states according to the extent to which a person provides for him/herself or is supported by the receipt of one or more transfer incomes. The transfer incomes included in the analysis are unemployment, welfare, sickness and early retirement benefit for health or social reasons. Receipt of these types of benefits for the group aged between 25 and 59 years is highly, but not perfectly, correlated with unemployment.

The six states between which movements are analysed are defined as follows by the degree of benefit provision during the year:

- benefit between zero and five weeks (I),
- benefit between five and 26 weeks (II),
- benefit between 26 and 40 weeks (III),
- benefit for more than 40 weeks (IV),
- housewives and students (V),
- early retirement pensioners (VI).

All those aged between 25 and 59 years are placed in one of these categories for each year between 1981-89. Table 5 shows the distribution of these states in 1981 and 1989 along with the net change. Looking first at states I-IV, i.e. those with some attachment to the labour market, one striking fact is the clear polarization that occurs in the core age groups during the 1980s. Strong growth occurs in the number of people in full or nearly full employment and in the number of people becoming marginalized relative to the labour market, i.e. group IV which receives benefit for more than 80 % of the year. The intermediate groups with some attachment to employment decrease in absolute numbers. The conclusion seems to be that a long period of high unemployment results in the division between insiders and outsiders becoming increasingly clear-cut.

Group V, which consists mainly of people in education and housewives declines to nearly half the initial level through transitions to other labour market states, cf. below. A final striking fact from Table 5 is the big increase in group VI, people in the core age groups in early retirement. This type of early retirement pension is also extended to people with health problems, but direct health-related factors can only explain a small part of the increasing number of people in this group. The main reason is a complete expulsion from the labour market, in many cases including people who have never established a firm attachment to a job.

Table 5. Distribution of labour market states, 25-59 year-olds, 1981 and 1989.  
(1000 persons)

Labour market state	1981	1989	Change
I	1.566	1.696	140
II	223	192	-31
III	90	93	3
IV	82	156	74
V	195	105	-90
VI	105	140	35
Total, I-VI	2.251	2.382	131

Source: Calculated from Social Commission, Documentation 4,1992, Table 111.1.

The transitions between the six labour market states from 1981-83 to 1987-89 are shown in Table 6. It is evident from Table 6 that the net change shown in Table 5 is the outcome of large gross transitions, especially between groups I-III. This reflects the fact that most of the approximately 750,000 people affected by unemployment each year are unemployed only for a fairly short period.

Table 6. Transitions between labour market states. Average initial states in 1981-83 and average destination states in 1987-89, age group 25-59 years. (1000 persons)

From state	To state						Total
	I	II	III	IV	V	VI	
I	1199	150	39	20	12	27	1447
II	233	123	49	26	3	15	449
III	55	52	43	35	1	15	201
IV	8	8	11	16	1	16	60
V	27	7	3	0	38	8	83
VI	1	1	1	0	0	58	61
Total	1523	342	146	97	54	139	

Source: Calculated from Social Commission, Documentation 4, 1992, Table IV.1, and Figures IV.1, IV.5 and IV.7.

The transitions in Table 6 are used to study the factors behind a number of labour market careers or profiles. Placement in state I can be termed a labour market integration profile. From Table 6 it follows that the frequency of placement in state I depends very much on the initial state. Of those in state I initially, 83 % remain in this state at the end of the period. For groups II, III and IV this frequency is .52, .27 and

.13 respectively, showing a strong relationship between the initial state and the frequency of being fully integrated in the labour market. Integration from groups II-IV occurs more often for men than for women. No integration occurs for those in early retirement. The integration with a frequency of .33 from group V consists mainly of people aged 25-39 completing an education.

Being an outsider initially, defined as belonging to group IV, is accompanied by a frequency of .55 for remaining an outsider or being completely expelled from the labour market. Being an insider initially protects very effectively against becoming an outsider, as about 93 % of those who are insiders initially remain insiders. Only 1.4 % of this group become marginalized, and 1.9 % are expelled from the labour market by entering group VI. Looking at the outsiders at the end of the period, 84 % are recruited from labour market states I-III, but with very different frequencies: 1.4 % from group II, 5.8 % from group II, and 17.4 % from group III.

The conclusion is that history-dependence is very strong. Being an insider protects effectively against becoming an outsider. On the other hand, being an outsider implies a frequency of more than a half of remaining an outsider or of becoming expelled from the labour market. The first of these tendencies is strongest for men, while the other is strongest for women.

As already mentioned, the Danish economy experienced a strong expansion in employment in the mid-1980s followed by a fresh increase in unemployment. The panel data has been used to study the impact from the employment expansion on different groups in the sample of 25-59 year-olds. A summary of the transitions between labour market states with specific emphasis on the impact from the employment expansion on those in state IV - long-term unemployment - is given in Table 7.

Table 7. Cyclical sensitivity of transitions to and from long -term unemployment (State IV), age group 25-59 years

	Entry to and exit from state IV			
	1981/83 to 1984/96		1984/86 to 1987/89	
	Women	Men	Women	Men
Entry from states I-III	22 000	19 000	4 000	28 000
Exit to states I-III	14 000	17 000	13 000	11 000
Net entry to state IV from states I-III	8 000	2 000	27 000	17 000
Exit to states V and VI	4 000	6 000	4 000	4 000
Overall net entry to state IV	4 000	-4 000	23 000	13 000

Source: Social Commission, Documentation 4,1992, Table IV.9.

The upper part of the table shows the movements between long-term unemployment and all states with lower unemployment aggregated into one state, I-III. Transitions in both directions are bigger for women during the cyclical upturn from the beginning of the 1980s to the mid-1980s than in the recession from the mid-1980s to the end of the decade. The net movement is in line with prior expectations, with a net entry into long term unemployment of 27,000 people during the downturn against 8,000 during the boom. Nevertheless, it seems fairly alarming that a net transition occurs at all to long-term unemployment during a period of rapidly increasing employment. The same occurs for men, although the number is smaller.

The lower part of Table 7 shows the exit from long-term unemployment to states V and VI. Predominantly, this represents transitions to state VI, i.e. a state with an early retirement pension for health or social reasons<sup>41</sup>. The exit to early retirement from long-term unemployment seems to be immune to cyclical factors. For men the exit is even greater during the upturn than during the subsequent recession. Overall, the strong expansion in employment in the mid-1980s is accompanied by an increase in the number of women in the core age group in long term unemployment. The number of men in this state declines slightly, but only due to an exit from long-term unemployment to early retirement.

The most interesting observation from Table 7 centres on the impact of the economic recovery on the long-term unemployed. In terms of those with a stronger attachment to the labour force, the results of the panel study show an improved employment situation, as expected. This, in combination with the conclusions drawn from Table 7, reinforces the tendency to polarization in the labour market during a period of persistently high unemployment, cf. the discussion in Section 3.1. The impact of the recovery was much more to the advantage of insiders than outsiders. This is also signalled by the fact that wages increased by 10-12 % in collective agreements in 1987 - whilst there were 220,000 unemployed. The overall conclusion seems to be that the employment problems of those who have become marginalized relative to the labour market are not solved by a sufficient expansion in aggregate demand. More specific instruments seem to be necessary.

The importance of the conditions in the labour market at the time of entry was discussed in Section 3.1. The importance of education as a selection mechanism was emphasized. Looking at the experience of the 25-29 year-old group, another factor appears. Long-term unemployment is especially high among those aged 30-39 without any formal education. Long-term unemployment is significantly lower among unskilled people in their forties. The explanation seems to be that unskilled people in their thirties in the 1980s entered the labour market as the first unemployment shock hit the economy in the mid-1970s. At that time those who were ten years older - and also unskilled - had established a firm attachment to the labour market and thus gained experience which then safeguarded them against unemployment. In this sense, many unskilled people now in their late thirties were unable to compensate for their lack of education by gaining work experience. For this reason, the large number of long-term unemployed in this group represent a "lost generation".

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<sup>41</sup> There is no entry to state IV - long-term unemployment - from states V-VI.

## 4 Policy proposals

The purpose of this section is to summarize some of the main elements of the policy proposals submitted by the Social Commission of special importance for unemployment. We follow the structure in the summary of the analysis above, i.e. proposals relating to the under-25s are treated separately from those relating to 25-59 year-olds.

### 4.1 Proposals relating to under-25s

The overall package of proposals for young people is financially neutral, i.e. increased expenditure on activation and education is compensated by a reduction in cash benefits. The fundamental idea is that a much smaller number of under-25s than currently should spend time in receipt of passive benefits. It is proposed that young people should at all times be eligible for a full-time active offer of indefinite duration instead of receiving passive welfare benefit<sup>42</sup>. Wages in public job offers and employment projects are lower than at present. It is also proposed that young people's access to full unemployment benefits should be restricted<sup>43</sup>.

In terms of education, the Commission makes three main proposals. It is planned to increase the availability of apprenticeships through an "auction-based" subsidy to employers taking on apprentices. The subsidies are to be financed by employers as a group. Next, a new system of practical education is proposed at a level below traditional apprenticeships and directed specifically at those who currently enter the labour market without any education beyond basic schooling and who are likely to experience long-term unemployment<sup>44</sup>. Finally, the third proposal is to abandon the system of restricted entry to most theoretical education.

### 4.2. Proposals relating to the 25-59 year-old age group

The proposals regarding unemployed people in this group relate to benefits, activation and education. In terms of benefits, a new concept called labour market attachment (LMA) is introduced: LMA is obtained either by completing an education of a specified minimum duration or through employment for a specified time in an ordinary job. Unemployed persons fulfilling the criteria for LMA are eligible for a flat-rate benefit of indefinite duration. Additional benefits with a maximum duration of four years can be obtained through membership of an unemployment insurance

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<sup>42</sup> This is in contrast to the present situation where many active offers to young people are part-time and of limited duration, after which the person very often returns to a new spell of receiving passive welfare benefit.

<sup>43</sup> The restrictions are in the form of stricter demands regarding labour market experience for the unskilled and stricter demands regarding the length of education for those without labour market experience.

<sup>44</sup> This proposal has recently been enacted by parliament.

fund. It is proposed that the funds should be financed equally through a labour market contribution levied on all employed persons and member's contributions to the funds. For those receiving both the flat rate and insurance benefits the Commission proposes a higher maximum amount but a lower percentage compensation, 80 %, compared with 90 % in the existing unemployment insurance system. Unemployed persons who do not fulfill the criteria for LMA are eligible for a means-tested version of the flat-rate benefit. Finally, it is proposed that companies should cover the benefit payments for the first week of each spell of unemployment<sup>45</sup>.

As far as activation measures are concerned, one of the main proposals relates to a rotation scheme designed to reduce long-term unemployment. In this scheme, a firm taking on a long-term unemployed person for a job is entitled to a subsidy of 250,000 DKK. Of this subsidy, 75,000 DKK is to cover part of the wage costs of the person appointed to the job. The rest, 175,000 DKK, is available to the firm and its employees to spend on three different types of educational, parental and sabbatical leave. The benefits received while on leave are graduated according to the purpose of the leave, with the highest amount for education and the lowest for sabbatical. The money can be spent at the most suitable time for the firm and its employees, not necessarily at the time when the long-term unemployed person is working for the firm. One obvious advantage compared to other rotation schemes is the conformity to market conditions, i.e. the scheme functions selectively in the relevant submarkets with high unemployment and is cyclically self-regulating. Furthermore, it creates - in the case of leave for education - an automatic upgrading of the qualifications of both outsiders and insiders.

A majority of the people in the core age group do not have any formal education beyond basic schooling. To improve the labour market position of this group it is proposed that unskilled workers should be eligible for a maximum of four years of adult education at the flat rate benefit. It is also proposed that those not in the unskilled category should be eligible for a maximum of one year of adult education, also at the flat rate benefit. Finally, it is proposed that both employed and unemployed people should be eligible for the flat rate benefit as a subsidy during the first year of establishing an independent business.

As demonstrated in Section 3, a significant number of people in the core age group are in a marginal position in relation to the labour market. Some of them have lost all sense of attachment to a job and have been unemployed for a long time, and some have never been able to establish a firm position on the labour market at all. For this group of people who - given realistic projections of the future course of unemployment - will never have an ordinary job, it is proposed to establish a so-called market for employment on special conditions<sup>46</sup>. The idea behind the proposal is that regional committees - consisting of representatives of unions, employers and local authorities - should perform a visitation function, i.e. determine when a person is

<sup>45</sup> Currently employers pay the first two days of benefits. The purpose of the proposed extension is to reduce the widespread phenomenon of temporary lay-off unemployment in the Danish labour market.

<sup>46</sup> In the Danish debate this has been termed a third labour market, with the first consisting of ordinary jobs and the second consisting of jobs in a broad range of activation schemes and employment projects.

eligible for the special employment market. When eligibility is granted, the person is allowed to search for jobs at a wage between one third and one half of the minimum wage on the ordinary labour market. It is proposed that the income of those in the special employment market should be supplemented by a benefit at a level corresponding to two thirds of the flat-rate benefit, cf. above. In an economic sense one could interpret this special employment market as a selective suspension of the minimum wage or as a more flexible way of operating a "job-activation" industry for people who have to a great extent been expelled from or have never gained access to the ordinary labour market.

## **5 Concluding remarks**

What can be learned from this long period of high unemployment? A first general point - supported both by studies of individual longitudinal data and macroeconometric studies - is the importance of avoiding a cyclical increase in unemployment becoming permanent. Experience shows that the NAIKU goes up very quickly if a cyclical increase is not reversed. If macroeconomic restrictions dictate that fiscal or monetary policy cannot be used to reverse a cyclical increase in unemployment, selective labour market policies in one form or another should be used to interrupt spells of unemployment before marginalization or expulsion from the effective labour supply occurs.

Another lesson from the Danish experience is the importance of education. Education functions not only as an instrument of selection, but also creates flexibility in the labour market, thereby reducing the NAIKU. The Danish experience demonstrates at the same time that a high minimum adult wage can function as an effective bar to entry to the labour market for those with little or no education in a situation of depressed demand.

The panel study of the 1980s demonstrated the importance of avoiding a polarization of the labour market, i.e. a situation where more and more people are either insiders or very much outsiders, with less people in between with a chance of upward mobility in the labour market. Polarization was most dramatically demonstrated by the destiny of those who entered the labour market at the time of the first negative employment shock. Those with sufficient education have established an equally firm attachment to the labour market as earlier generations. Those without education on the other hand have to a great extent become a "lost generation".

Another important point concerns the incentives to avoid unemployment, especially long-term unemployment. Sensible incentives are important in the financing of unemployment benefit with the purpose of making the costs of unemployment more visible to those who decide on wages. At the same time it is important that political authorities at different levels have the incentive to choose optimal instruments in the activation of long-term unemployed people. In the Danish experience one problem in this area has been a tendency to choose instead instruments which make unemployed persons eligible for benefits financed from another administrative level, thus using

activation as a benefit-generator. In the light of this, joint financing seems a sensible solution. Finally, the Danish experience shows that supply reductions are inefficient instruments for bringing down the level of unemployment as the main long-term effect of reduced supply is on employment, and not as intended on unemployment.

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## COMMENT

by Reija Lilja, Helsinki School of Economics

The persistence of high unemployment in Western Europe since the mid-1970s has been widely discussed in labour market literature. It has been recognized that in order to understand the mechanisms behind persistent unemployment in different countries macroeconomic analyses are not sufficient and detailed microeconomic analyses of the labour market are also needed. In this respect Peder J. Pedersen's interesting paper on the Danish experience highlights the cumulative building-up of high unemployment since the early 1970s.

In Denmark the consequence of many years of high unemployment has been that the NAIRU (the non-accelerating inflation rate of unemployment) has increased. There are many reasons why the NAIRU can change, and according to Nickell, Layard and Jackman (1991) it can be affected by the following factors:

	Effect
Duration of unemployment benefits	+
Replacement ratio	+
Expenditure on active manpower policies	-
Union coverage	+
Co-ordinated bargaining by unions	-
Co-ordinated bargaining by employers	-

In Denmark the long duration of unemployment benefits, high replacement ratios, low expenditure on active manpower policies and high union coverage push the NAIRU upwards, whereas co-ordinated bargaining by unions and employers decreases it. Peder J. Pedersen does not discuss in his paper how changes in these different factors might have affected the observed rise in the NAIRU in Denmark since the 1970s but instead he suggests that the rise in the NAIRU occurred because it had followed the increase in actual unemployment due to endogenous wage reactions to economic shocks, i.e. because of hysteresis in unemployment.

The phenomenon of hysteresis in unemployment is important and it can arise in situations similar to those experienced in Denmark where the wage-setting process is determined by the aspirations of the workers with jobs (insiders) rather than by the unemployed (outsiders). If this is the case it is not sufficient just to boost aggregate demand in order to reduce unemployment. In fact, policy measures targetted at those groups of the unemployed who are in a less advantageous position than others, such as the long-term unemployed, are required.

In his longitudinal study, Peder J. Pedersen shows how high and increasing unemployment in the 1980s has affected different groups in the Danish labour market; i) persons between 15 and 24 years of age and ii) those aged 25-59. Among the

young, a lack of education and a long spell of unemployment at the time of entry into the labour market affected the labour market experience of that group in the following years. Furthermore, a high minimum adult wage effective from the age of 18 seems to have functioned as a restriction on labour market entry in Denmark. This result is in contrast with the Finnish experience, where minimum wages do not seem to have had any significant impact on unemployment rates among the young.<sup>47</sup> In fact, the level of economic activity rather than wages has explained most of the increase in youth unemployment in Finland. Could this be the case in Denmark if the effect of the level of economic activity were analysed? In fact, if jobs typically occupied by young people between 15-17 years of age react less strongly to changes in economic activity than typical jobs of young adults aged 18 and over, one would observe higher unemployment rates among young adults in recessions than among teenagers, even if both groups received similar wages.

According to Peder J. Pedersen, history-dependence is very strong in the 25-59 year-old age group. Being an insider effectively protects one from becoming outsider and being an outsider means having a high probability of remaining an outsider or of exiting the labour market. Long-term unemployment was found to be especially high among people aged 30-39 years without any formal education.

What should be done in such a situation? To a large extent I agree with the policy proposals which Peder J. Pedersen puts forward in his paper to combat unemployment in Denmark and I hope that in Finland we will learn from these proposals before experiencing high rates of unemployment for many years. Active labour market programmes ought to reduce the NAIRU and there is therefore good reason to increase expenditure on activation measures. Raising educational levels improves the market status of the unemployed and induces economic growth. Furthermore, improving the attachment of the unemployed to the labour market increases their employability and reduces spells of unemployment. Interrupting spells of unemployment for the long-term unemployed through subsidies or special arrangements is needed in order to fight history-dependence. On the other hand, it is always possible that new labour market measures involve potential displacement, substitution or deadweight effects and the question of the relevance or irrelevance of these effects deserves discussion before they are implemented.

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<sup>47</sup> Sauramo and Soltila (1986).

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# LONG TERM UNEMPLOYMENT IN FINLAND: A MACROECONOMIC VIEW<sup>48</sup>

by Jaakko Pehkonen, University of Jyväskylä

## 1 Introduction

In Europe, unemployment rose continuously throughout the 1970s and early 1980s. By 1985, unemployment in the EC countries stood at over 11 %, almost 9 percentage points higher than it had been in 1972. In Great Britain and Belgium, for example, the unemployment rate had risen from 2 per cent to 12 per cent by 1985. In Spain, the situation was even worse: the unemployment rate surged from 3 to 16 % within the same period. In the EFTA countries the situation was considerably better. In Norway, Sweden and Switzerland, for example, open unemployment remained almost unchanged. During the second half of the 1980s, employment increased slightly in a number of countries as a consequence of the economic recovery. The decline in overall unemployment was not, however, of considerable magnitude and consequently the 1980s have been described as a decade of high and persistent unemployment.

As far as the EC countries are concerned, aggregate unemployment masks one important feature: in all the EC countries the long-term unemployed, measured in terms of those out of work for one year or more, constitute a substantial proportion of total unemployment. As can be seen from Table 1, the incidence of long-term unemployment, expressed as the percentage of the long-term unemployed of the unemployment total, levelled out on average at around 37 % in 1979, around 53 % in 1985 and around 50 % in 1991. In 1991 the highest figures were in Belgium and Italy, where the share of total unemployment accounted for by the unemployed with spells of unemployment lasting over one year was about 70 %. Of the EC countries, the lowest figure was in Denmark at 33 %. The situation in the EFTA countries and the non-European OECD countries was again better. On average, the proportion of long-term unemployed was relatively modest, and was lowest in Finland and Sweden.

The general picture emerging from Table 1 is that there seems to be a rather strong positive correlation between aggregate unemployment and the proportion of the long-term unemployed.<sup>49</sup> This generalization should be qualified, however. Firstly, there does not appear to be a one-to-one relation between long-term unemployment and the level of overall unemployment in the various countries. For example, Belgium and Italy had a similar incidence of long-term unemployment in 1990 despite the fact that Belgium's unemployment rate was about 2 percentage points lower than that of Italy. On the other hand, France and Belgium had similar unemployment rates, but the incidence of long-term unemployment in the latter country was about 32 percentage points lower. Secondly, the relationship between long-term unemployment and overall unemployment has not remained stable over time, rather the proportion of

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<sup>48</sup> This study is part of a project supported by the Academy of Finland.

<sup>49</sup> This point is particularly well illustrated in OECD (1987) p. 173.

long-term unemployment has risen at a given level of unemployment. Ireland and Italy are such examples.

Table 1. Total unemployment and long-term unemployment in selected OECD countries

Country	Unemployment rate			Long-term unemployment <sup>+</sup>		
	1973	1985	1991	1979	1985	1991
EC countries						
Belgium	2.4	12.3	9.3	61.5	69.8	69.9*
Denmark	1.0	9.0	10.4	36.2	39.9	33.7*
France	2.7	10.3	9.5	30.3	46.8	37.3*
Germany	1.0	8.0	6.7	28.7	47.9	46.3*
Italy	6.4	10.2	11.0	51.2	65.8	71.1
Netherlands	2.2	10.6	7.0	35.9	60.7	48.4*
Spain	2.8	21.5	16.3	29.5	56.7	51.1
U.K.	2.1	11.6	8.3	29.5	48.6	36.1*
EFTA countries						
Austria	1.0	3.6	3.3	-	-	-
Finland	2.3	5.0	7.6	17.7	10.3	2.6
Norway	1.5	2.6	5.5	2.9	10.2	20.2
Sweden	2.0	2.4	3.1	6.8	11.4	4.8
Switzerland	0	0.8	1.1	-	-	-
Canada	5.5	10.5	10.3	3.4	10.3	7.2
Japan	1.3	2.6	2.1	16.8	11.8	17.9
U.S.	4.8	7.2	6.7	4.2	9.5	6.3

Notes: + = percentage of long-term unemployed of the unemployment total  
 - = no observation  
 \* = situation in 1990

Source: OECD Employment Outlook 1993, Economic Outlook 1993:1.

The Finnish unemployment experience over the period 1970-1992 is depicted in Figures 1a and 1b. In the 1970s and 1980s the unemployment rate in Finland was, on average, well below the European average. As can be seen from Figure 1a, however, unemployment after 1989 rose at an exceptional rate: the aggregate

unemployment rate rose from 3.4 % in 1989 to 16.5 % by 1992. This increase has been associated with several factors, including the collapse of trade with the former Soviet Union, the bursting of the lending and property bubble of the late eighties and the international recession. This situation has also affected long-term unemployment: the proportion of long-term unemployment, which levelled at 3.3 % in 1990, rose to 8.2 % in 1992. The current trend suggests an estimate for 1993 as high as 20 %. If the proportion of long-term unemployment is measured in terms of those out of work for six months or more, the estimate for 1993 will be as high as 45 %.

Figure 1a. Unemployment in Finland, 1970-1992

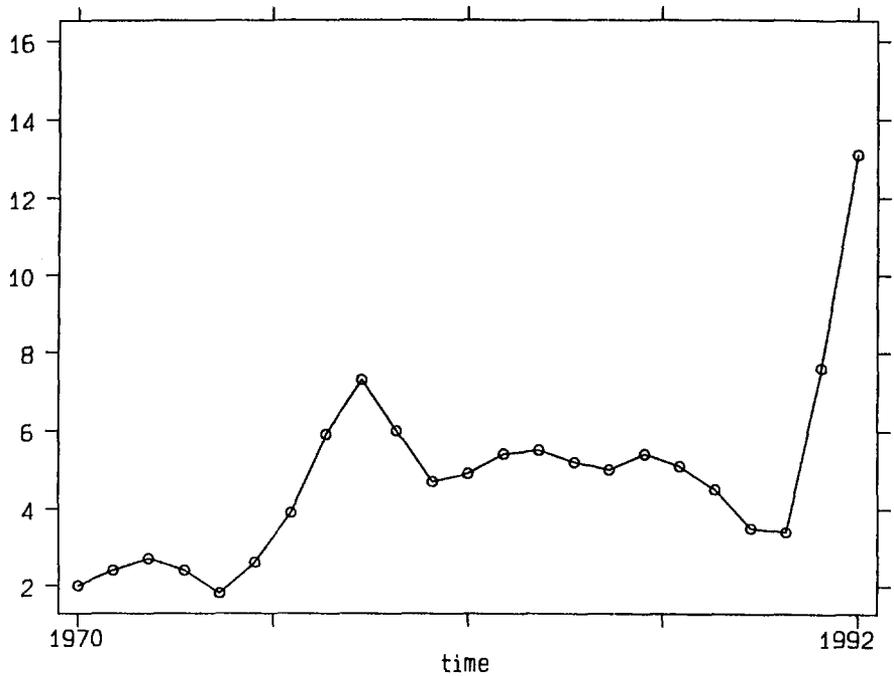
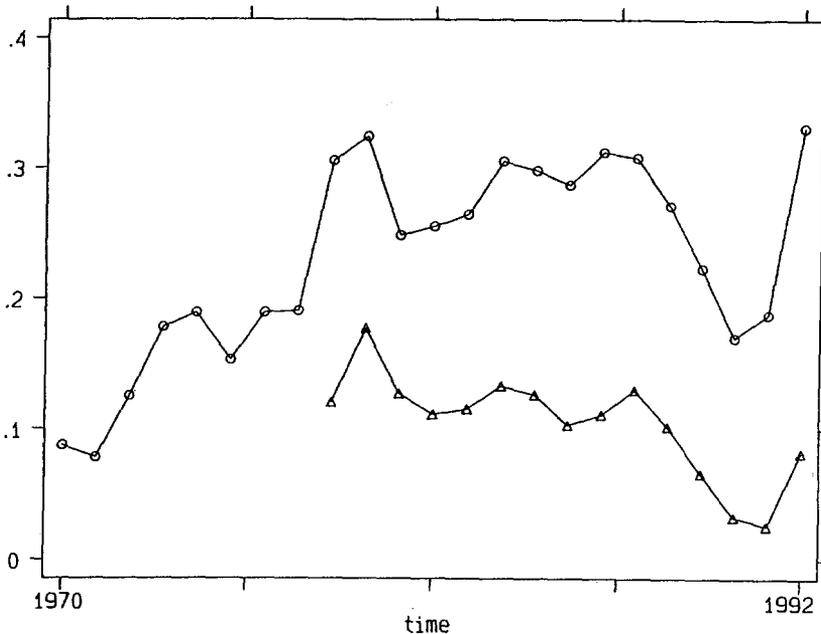


Figure 1b. Long-term unemployment in Finland, 1970-1992



Δ = the share of long-term unemployed (out of work for a year or more)

O = the share of long-term unemployed (out of work for six months or more)

Forecasts for the end of the century are bleak. The Ministry of Labour, for example, predicts that there will no return to the unemployment levels prior to the late 1980s in the near future. In particular, it is predicted that the unemployment rate is likely to remain above 15 % of the total labour force up to the year 2000. These forecasts of the evolution of overall unemployment naturally give rise to the question: what will happen to long-term unemployment? This issue is important in two respects. Firstly, long-term unemployment imposes human and social costs. If it seems likely that the proportion of long-term unemployment will rise to an unprecedented level, appropriate policy measures should be taken to prevent such an outcome. Secondly, high and persistent unemployment with long spells can be interpreted as a sign of the failure of the market. Consequently, the factors affecting persistent unemployment should be placed on the research agenda.

Unemployment, and especially long-term unemployment, has received little attention as a research subject in Finland. As far as studies of long-term unemployment are concerned, the approach has essentially been micro-oriented: studies have used panel data sets to examine how individual characteristics such as age, gender, education, work experience and unemployment benefits affect the duration of unemployment / the probability of finding a job; see Sääski (1981), Eriksson (1985,1993), Lilja (1992) and Kettunen (1993). Studies focusing on long-term unemployment or the duration of unemployment from a macroeconomic point of view are few and far between,

although Table 1 and Figure 1 clearly suggest that the relationship between aggregate unemployment and long-term unemployment should be submitted to closer scrutiny.

The purpose of this study is to shed light on this issue by analysing data on long-term unemployment for the period 1970-1992. In particular, we examine how a simple model relating long-term unemployment to total unemployment can explain the evolution in the proportion of long-term unemployment. Furthermore, we examine whether the performance of this simple model can be enhanced by augmenting it with variables accounting for the institutional characteristics of the Finnish labour market, particular attention being given to the Finnish unemployment compensation system and active policy measures.

The remainder of the paper is organized as follows. In Section 2 the theoretical model is discussed. In Section 3, the data is described and the results are reported. Section 4 summarizes the main conclusions.

## 2 From unemployment to long-term unemployment

Consider a rise in the inflow into unemployment with no change in the outflow from unemployment.<sup>50</sup> Firstly, the proportion of long-term unemployment will fall due to the inflow of newly unemployed persons (this is indicated by the move from point 1 to 2 in Figure 2). After one year, a proportion of these entrants will move into long-term unemployment, causing a rise in the proportion of long-term unemployment (from 2 to 3). Although aggregate unemployment stabilizes during the next phase, i.e. the inflows into unemployment equal the outflows from unemployment, the proportion of long-term unemployed will rise if the outflows are concentrated among the short-term unemployed (from 3 to 4). In the medium-term, therefore, we observe a positive relationship between long-term unemployment and the aggregate unemployment rate. This dynamic relationship is captured in equation (1),

$$LTU_t = \alpha_0 - \alpha_1 UR_t + \alpha_2 UR_{t-1} + \alpha_3 UR_{t-2} + \varepsilon_t, \quad (1)$$

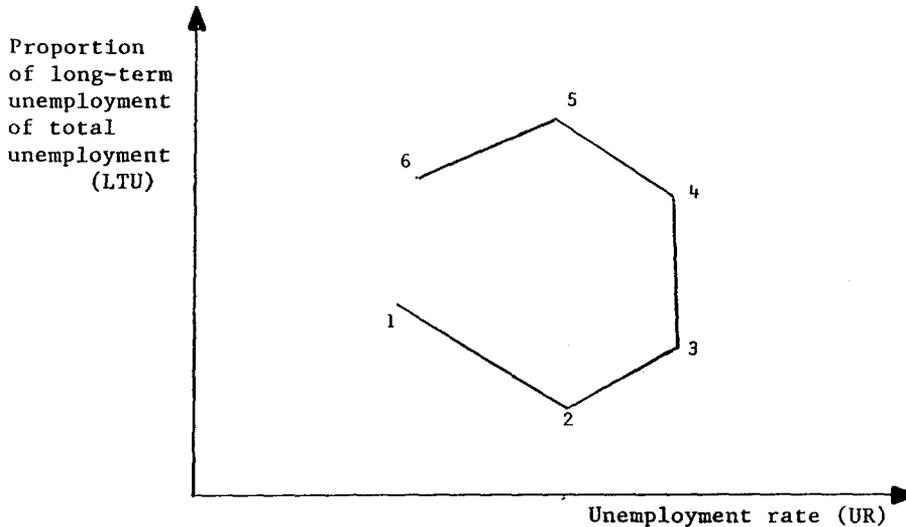
where LTU refers to long-term unemployment and UR to the aggregate unemployment rate. The model implicitly assumes that the responses are symmetrical: a fall in aggregate unemployment will return the situation to its starting point, i.e. the initial position is re-established, thus in Figure 2 we end up at point 1 via points 5 and 6. Casual observations, however, suggest the opposite: long-term unemployment tends to remain at a higher level despite the fact that unemployment falls back to its initial level. As noted at the outset, Belgium, Japan and the US are examples in this respect. The second issue not encompassed by equation (1) is that long-term unemployment can rise without a corresponding upswing in aggregate unemployment, implying that the constant  $\alpha_0$  is not time-invariant. Canada and Sweden, for example, experienced a rise in the proportion of long-term unemployment at a given unemployment rate in the mid-1980s. Finally, equation (1) is not based on theoretical underpinnings, but simply

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<sup>50</sup> A similar sketch is presented in OECD (1987).

postulates a structural relationship between two endogenous (and interdependent) variables. To sum up, theoretical considerations are called for.

Figure 2. Relationship between long-term unemployment and total unemployment



This determination of unemployment can be analysed by considering a model of wage-setting and price-setting à la Layard and Nickell (1991). Assume that wages are set as a mark-up on prices, with the mark-up tending to rise as employment  $N$  rises and unemployment  $U$  falls. Furthermore, the mark-up is affected by push factors  $z$ , which tend to increase/decrease wages at a given level of unemployment/employment. Abstracting from expectation errors, it can be postulated that

$$w - p = \gamma_0 + \gamma_1 (U/N) + z. \quad (2)$$

Similarly, prices are set as a mark-up on wages such that the mark-up rises with the level of economic activity, captured by the ratio of unemployment to employment ( $U/N$ ), as above:

$$p - w = \beta_0 + \beta_1 (U/N). \quad (3)$$

Combining equations (2) and (3), the simplified wage-setting and price-setting model can be solved for unemployment. In essence, equilibrium unemployment depends on push factors  $z$  and the parameters characterizing the bargaining structure of the labour market  $\gamma_0$  and  $\beta_0$ . In the steady state, the unemployment rate can also be written as the product of the inflow rate and the average duration of spells of unemployment. To introduce the concepts of flows out of and into unemployment, it can be assumed that

real wage aspirations depend on how easily the unemployed can find employment. An appropriate measure is the outflow from unemployment ( $H$ ) divided by the number of active job-seekers ( $cU$ ), where  $c$  denotes the average search efficiency of the unemployed, i.e. we replace  $U/N$  in equation (3) with  $H/cU$ . Since in equilibrium the outflow from unemployment  $H$  equals the inflow into unemployment  $sN$ , where  $s$  is the inflow rate, the unemployment equation can be written as follows:

$$\ln(u) = -\ln(\gamma_0 + \beta_0) / \gamma_1 - \ln(c) + \ln(s), \quad (4)$$

where it has been assumed (for simplicity) that the mark-up on prices does not depend on the situation in the labour market, i.e.  $\beta_1 = 0$ . Furthermore, it has been assumed that  $\ln(u) = \ln(U/(U + N)) \approx \ln(U/N)$ . Since the proportion of long-term unemployment ( $LTU = U_1/U$ ) depends on the average search efficiency of the unemployed relative to the average inflow rate into unemployment as well as on the distribution of outflow rates from unemployment, (4) can be rewritten in the following general form:

$$LTU = f(c, s). \quad (5)$$

To sum up, it can be hypothesized that the share of long-term unemployment depends on the inflow and outflow rates  $c$  and  $s$ . Economic literature, both theoretical and empirical, puts forward several possible factors affecting these rates, originating either in the demand or the supply side of the labour market. Below we briefly consider both the secular and cyclical factors affecting the inflow and outflow rates. In particular, the following factors are discussed: (i) the unemployment compensation system, (ii) job security provisions, (iii) labour market policies, (iv) demographic factors and heterogeneity, (v) duration effects and (vi) demand effects.

1. Unemployment benefits. There has been much discussion in economic literature about the effects of unemployment compensation systems on unemployment. On the one hand it has been argued that unemployment benefits are an important factor influencing unemployment since they affect the incentives for the employed to stop work (inflow into unemployment) as well as for the unemployed to return to work (outflow from unemployment). Furthermore, the generosity of benefits can influence the wage bargaining behaviour of unions, thus affecting the equilibrium wage and unemployment. On the other hand it has been argued that predictions based on search-theoretical considerations are not unambiguous and tend to depend on how the compensation system is constructed as well as on the situation in the labour market. Atkinson and Micklewright (1985, 1991), for example, point out that it is possible that in a depressed labour market the reservation wage (which affects the flows into and out of unemployment) may not, in a certain range, be sensitive to variations in the level of unemployment benefits. Similarly, the incentive effects of the compensation system are likely to depend on institutional factors such as alternative forms of benefits, the structure of benefits over time, and eligibility conditions.

2. Employment protection. Employment protection can influence the functioning of the labour market through the costs it imposes on the use of labour input. The textbook view is that the higher the adjustment costs related to the use of labour input (the hiring, training and firing costs), the choosier and more considered employment

policies firms tend to conduct. Consequently, this will affect both inflows into and outflows from unemployment. Since the costs of adjustment cause firms to adjust their labour input only gradually to changes in demand conditions, the level of employment tends to exceed its optimal level in recessions, whereas in booms the opposite tends to occur.

The equilibrium time path of employment, and thus that of unemployment, may not, however, be independent of the level of adjustment costs. In particular, high turnover costs may lead to factor substitution, with firms increasing capital at the expense of their future demand for labour. In the short and medium term this has adverse effects on employment. In the long run, however, unemployment should be neutral with respect to growth in the capital stock. Nevertheless, if wages are set by insiders (workers currently employed by the firm) who take advantage of turnover costs and accordingly increase their wages at the expense of additional employment, the unemployment originally brought about by factor substitution may become persistent. Similarly, in the presence of substantial adjustment costs, an adverse demand shock which causes firms to reduce labour may also lead to a permanent rise in equilibrium unemployment and the average duration of spells of unemployment.

3. Mismatch. Two main groups of mismatch can be distinguished, viz. one related to the demographic structure of the labour force and one to job heterogeneity. As far as the former group is concerned, empirical studies analysing the composition of long-term unemployment indicate that the oldest members of the labour force (aged 50-64) are most affected by long-term unemployment, i.e. the spells of unemployment experienced by old workers tend to be the longest.<sup>51</sup> These results are frequently explained by recourse to relocation costs, which may be substantial for older workers. Furthermore, it is also alleged that employers discriminate against older workers. This argument is based on the view that older workers adapt to changing skill requirements less smoothly than younger workers and are therefore rejected by employers.<sup>52</sup>

It is commonplace in literature to assume that workers and jobs are homogeneous. In reality, however, there is much heterogeneity in the labour market: qualifications for work vary across jobs, vacancies are scattered unevenly across regions and industries, labour market participants differ with respect to their educational attainment and qualifications, and so on. The greater the heterogeneity, the larger the mismatch between the demand for labour and the supply of labour and, as a result, the longer the average spell of unemployment.

4. Labour market policies. There has been much discussion in economic literature about the effects of active labour market policies on unemployment, particularly long-term unemployment. In the OECD countries active labour market measures first began to figure on policy-makers' agendas in the early 1960s. Initially, they were

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<sup>51</sup> Lilja (1992) for example concludes that age has an extremely strong influence on the average probability of finding a job. This result is found to be particularly marked in the case of those on unemployment assistance and those receiving no unemployment compensation at all.

<sup>52</sup> The question as to whether the gender composition matters is less apparent, see e.g. OECD (1987). According to Lilja (1992) gender effects are likely to be small in the case of Finland.

designed to remove labour market shortages. In the 1970s and early 1980s the emphasis shifted, mainly due to rising unemployment, to job creation activities and measures aimed at reducing the labour supply. Since the late 1980s the focus of policy has shifted to measures to improve skills, encourage labour mobility, improve the allocation of labour, etc; see e.g. OECD (1993) for details. There is little empirical evidence on the effects of labour market policies designed to affect the outflow from unemployment. However, there are results implying that in countries where the degree of labour policy activism is higher, long-term unemployment tends to be at a lower level; see OECD (1993). As far as the Finnish experience is concerned, Eriksson (1993) concludes that the Employment Act of 1987 enhanced the employability of the unemployed and contributed to a significant reduction in long-term unemployment. Since specially targetted employment policies may give rise to displacement effects, macroeconomic analysis of the effects of the 1987 employment act is of special interest.

5. Duration effects. A number of applied studies report results that the probability of obtaining a job decreases with the length of the spell of unemployment.<sup>53</sup> Although this can partially be accounted for by heterogeneity, i.e. the individual characteristics of the unemployed, so-called state-dependence is not generally ruled out. In particular, it is hypothesized that the duration of unemployment can adversely affect a worker's chances of finding a job, in particular through its effects on the following factors: (i) job search, (ii) the workers' skills, motivation and morale and (iii) job screening and employer perceptions. State-dependence can thus be associated with either employee- or employer-initiated factors. For example, the third case includes cases of discrimination against the long-term unemployed on the part of employers: because the long-term unemployed are regarded as low-productivity workers, employers are reluctant to hire them (they are stigmatized). In short, the state-dependence hypothesis implies that the evolution of long-term unemployment is likely to depend on the lagged proportion of long-term unemployment. It is also possible that duration effects are reinforced by the wage-setting behaviour of unions.

6. Cyclical effects. Controlling for demand effects is important for two reasons. Firstly, as discussed above, the effects of unemployment benefits on unemployment are likely to vary with the labour market situation: an increase in unemployment benefits will affect unemployment in a tight labour market but not in a slack one. In short, the frequency with which job offers are made (as well as their distribution) affects the reservation wage and thus the expected duration of unemployment. Secondly, the inflow into unemployment and the outflow from unemployment are directly affected by the labour market situation. It is well known that temporary lay-offs and redundancies fall during booms and rise in recessions, whereas voluntary resignations appear to evolve countercyclically, i.e. they tend to fall during recessions and rise in booms. Moreover, the proportion of those whose spell of unemployment has ended in withdrawal from the labour force is affected by the demand conditions in the labour market.<sup>54</sup>

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<sup>53</sup> For a survey, see Westergaard-Nielsen and Pedersen (1993).

<sup>54</sup> Lilja (1992) reports that in her sample consisting of 992 unemployed about 18 % of the unemployed withdrew from the labour force over an three-year period.

### 3 Empirical results

#### 3.1 Data and explanatory variables

The Finnish employment service's unemployment register has provided data on the duration of spells of unemployment since 1970. Not until 1978, however, was a distinction made between those whose spell of unemployment exceeded 26 weeks or 52 weeks. The data therefore imposes certain limitations on empirical analysis. Firstly, analysis must be based on a definition which equates long-term unemployment with those out of work for six months or more.<sup>55</sup> Secondly, due to the size of the sample, the number of explanatory variables must be kept to a minimum. Thirdly, since there are only two observations prior to the introduction of the 1972 Employment Act, no comparisons can be conducted between the situation before and after the 1972 Act. Before we turn to the empirical results, a few comments should be made on the data.

The unemployment compensation system is frequently summarized in terms of the replacement ratio, i.e. the ratio of net benefits to net earnings received at work.<sup>56</sup> On the other hand it is also agreed that the system has more attributes than can be captured by a single variable; see, for example, Atkinson and Micklewright (1991) and Layard et al. (1991). In this study the latter approach is taken as the point of departure. Consequently, we shall concentrate on three aspects of the unemployment compensation system, viz. (i) the replacement ratio / the absolute level of benefits, (ii) the maximum duration of the benefits an unemployed person is entitled to and (iii) the coverage of the compensation system. Needless to say, empirical analysis will face problems related to both aggregation and endogeneity.<sup>57</sup>

Until 1985, both unemployment assistance benefits (since 1985 the basic unemployment allowance) and unemployment insurance benefits (since 1985 the earnings-related allowance) were not liable to tax. At the beginning of 1985 the level of benefits was increased and they became taxable. In particular, insurance benefits became earnings-related, i.e. they were linked to the recipient's previous income from work. Furthermore, a 20 % reduction in unemployment insurance benefits after the first 100 days of unemployment was in effect from 1985 to 1986, and a 12.5 % cent reduction after the first 200 days from 1987 to 1988.<sup>58</sup> Unfortunately, we have no information on the composition of long-term unemployment, i.e. the proportion of the

<sup>55</sup> In the 1960s and 1970s the OECD considered unemployment lasting longer than six months as "long-term". In the 1980s, long-term unemployment is frequently defined as unemployment lasting one year or longer.

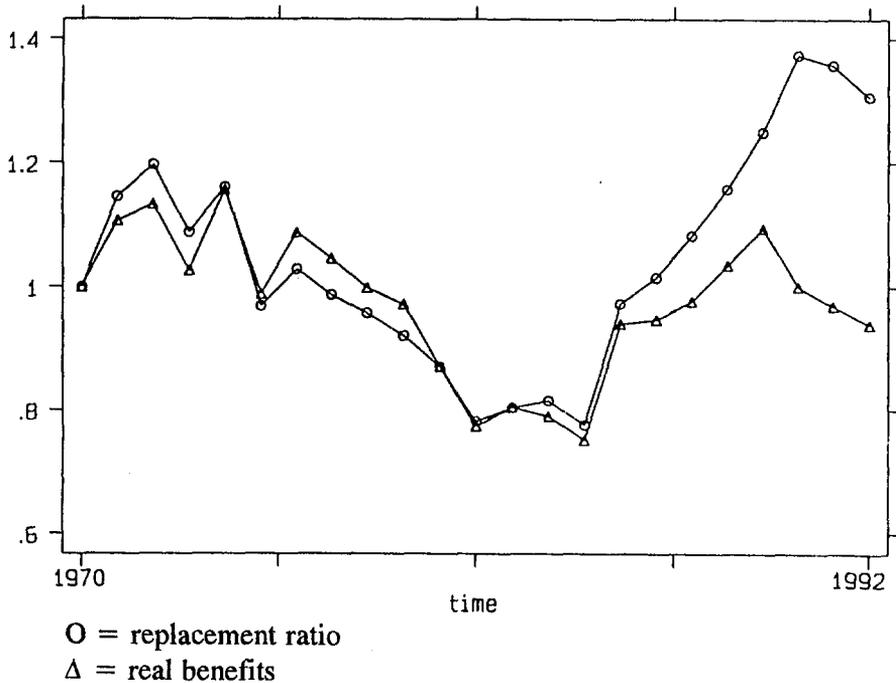
<sup>56</sup> See Atkinson and Micklewright (1985) for different definitions of the replacement ratio.

<sup>57</sup> For example, as noted in Atkinson and Micklewright (1991), it is possible that the parameters of the unemployment compensation system (the level and duration of benefits in particular) may themselves be influenced by the state of the labour market, i.e. unemployment and benefits may be determined simultaneously at the aggregate level.

<sup>58</sup> Since the main elements of the unemployment compensation system and changes in it are described in a number of sources, including Eriksson (1993) and Kettunen (1993), we confine ourselves to some remarks which frame the choice of the variables used in the empirical analysis.

long-term unemployed receiving insurance benefits and assistance benefits. As a result, the replacement ratio used in the empirical analysis is defined as a weighted average of those receiving unemployment insurance benefits and those receiving unemployment assistance benefits over the average net wage at work (RR).<sup>59</sup> Since it can be argued that the incentive to return to work depends on the absolute level of benefits rather than the replacement ratio, the real level of average benefits will also be used as an alternative explanatory variable (RB). The graphs of both time series are depicted in Figure 3. Furthermore, two dummies are introduced: D85A, aimed at capturing measurement problems associated with the change in the unemployment compensation system in 1985 (0 in 1970-84 and 1 in 1985-92), and D85B, which attempts to capture changes in the reductions discussed above (0 in 1970-84 and 1989-92, 1 in 1985-86 and 0.5 in 1987-88).

Figure 3. Replacement ratio and real benefits, 1970-1992

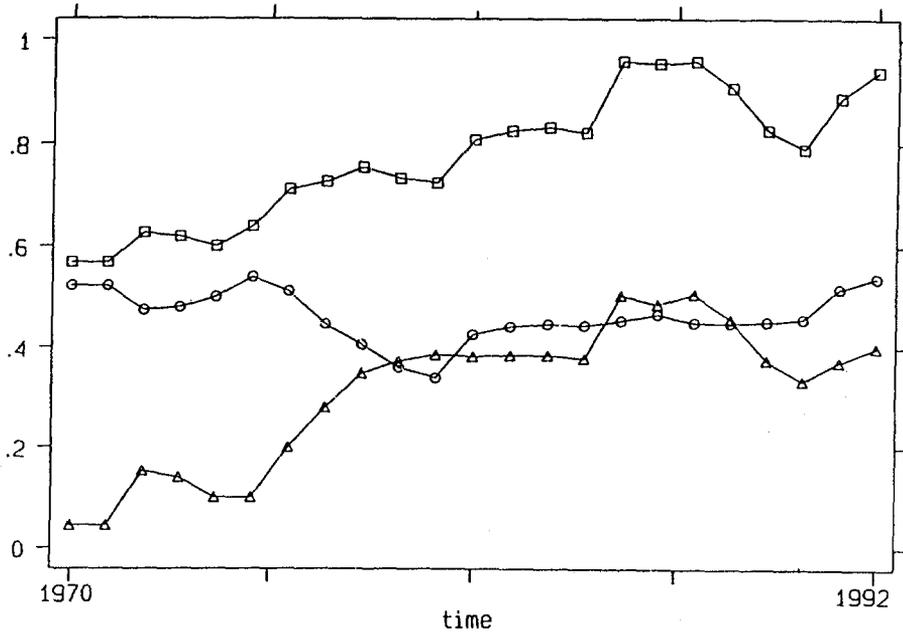


The proportion of the unemployed covered either by unemployment insurance or unemployment assistance benefits has increased considerably over the last two decades, with the share of those not receiving any compensation at all falling from about 40 % to about 15 %. This secular growth has mainly been due to a rise in the

<sup>59</sup> Variables and their definitions are explained in the Data Appendix.

proportion of the unemployed receiving unemployment assistance (from 4 % in 1971 to 38 % in 1992), whereas the proportion of the unemployed receiving insurance benefits has remained relatively stable, its share varying from 53 % in 1971 to 34 % in 1980 and back to 54 % in 1992. In the spirit of aggregate time series analysis (as well as for the sake of consistency) the coverage of the compensation system (COV) is measured by the proportion of the unemployed receiving benefits, either insurance or assistance benefits; see Figure 4 for a time series graph of this variable.

Figure 4. Coverage of unemployment compensation systems, 1970-1992



$\Delta$  = the share of unemployed covered by unemployment assistance benefits  
 $O$  = the share of unemployed covered by unemployment insurance benefits  
 $\square$  =  $\Delta + O$

The 1972 Employment Act abolished the maximum duration of unemployment assistance benefits which had been limited to 120 days per calendar year. As far as unemployment insurance benefits are concerned, there have been two main changes affecting their duration since 1972: the first in 1978/1979 and the second in 1985. In 1978, the maximum duration of 150 days per calendar year was extended to 200 days (40 weeks) such that the maximum number of days over three consecutive years was 450. In 1985, the maximum was increased to 500 days over four consecutive years. These changes are proxied by a dummy variable, DUR, which is assigned the value 0 in 1970-77, 0.5 in 1978-84 and 1 in 1985-92.

The 1987 Employment Act, which came into force at the beginning of 1988, obliged both the state and local authorities, in essence, to arrange training or temporary employment for those whose unemployment had lasted more than one year. In the case of young people (aged 15-20), however, the threshold was only three months. Furthermore, the Act was aimed at reducing regional differences in unemployment. The purpose of the 1987 Employment Act was thus to target long-term unemployment, young people and the high-unemployment regions; see for example Eriksson (1993) and Kaunisto (1992) for details. Since the Act came into force only gradually, being introduced in three stages between 1988-1990 and was de facto terminated by the end of 1992, it is proxied by a dummy variable (ACT87) which is assigned the value 0 in 1972-87, 0.33 in 1988, 0.67 in 1989 and 1 in 1990-92.

Measuring mismatch in the labour market is not an easy task and there are a number of potential variables which could be used in the empirical analysis. A frequently used procedure is to characterize mismatch by variables measuring regional, industrial or occupational heterogeneity. Moreover, trends in the composition of the labour force are often proxied by age and gender variables. In our case the size of the sample requires rather strict a priori considerations. Consequently, we proxy mismatch in the labour market by a single variable, namely the proportion of older workers (50-64) in the labour force (AGE); see Figure 5 for a time series graph of this variable. There are two reasons for this. Firstly, previous empirical analyses have pointed to the importance of this variable in explaining the probability of finding a job and that the incidence of long-term unemployment increases with age; see Eriksson (1985) and Lilja (1992) for Finnish data and OECD (1987) for the OECD countries. Secondly, mismatch indices based on regional, occupational or industrial differences as well as on labour mobility do not appear to show very much variation over the period under consideration; see for example Eriksson (1993), who concludes that regional differences in unemployment rates have remained almost unchanged for the last 30 years and that, despite relatively large and persistent differences between industries, no essential changes in the pattern have taken place over the past few decades.

A factor which is also closely linked to the performance of the labour market through the costs of adjustment is that of job security legislation. An obvious candidate for a proxy is the length of pre-notification of dismissal, which was partially extended from two weeks in 1970 to two - six months in 1989, depending on length of service. These changes are captured by a dummy variable (PROT) which takes the value of zero in 1970-77, 0.5 in 1978-85, 0.75 in 1986-88 and 1 thereafter.

In analyses based on panel data, the usual procedure has been to use variables such as the local unemployment rate or the number of open vacancies as demand indicators; see Figure 6 for a time series graph of the latter variable. In the case of time series analysis their aggregate counterparts are natural choices. This option is not, however, entirely unproblematic. In particular, since the aggregate vacancy variable is endogenous, it must be instrumented. Given the size of the sample, this is likely to give rise to problems. Secondly, demand variables are also likely to capture duration effects. This complicates the interpretation of the parameter estimates.

Figure 5. The proportion of workers aged 50-60 of the total labour force, 1970-1992

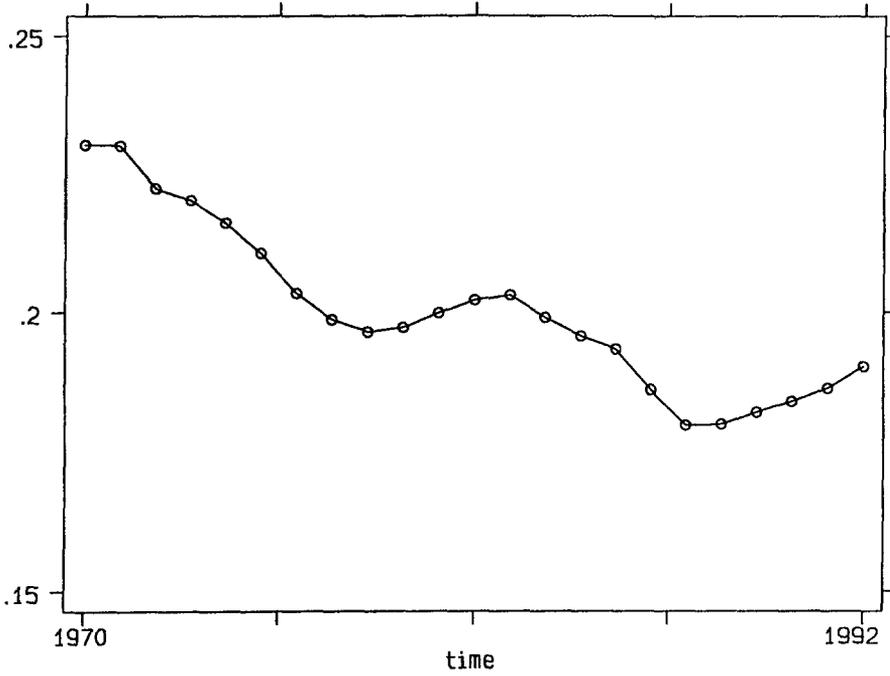
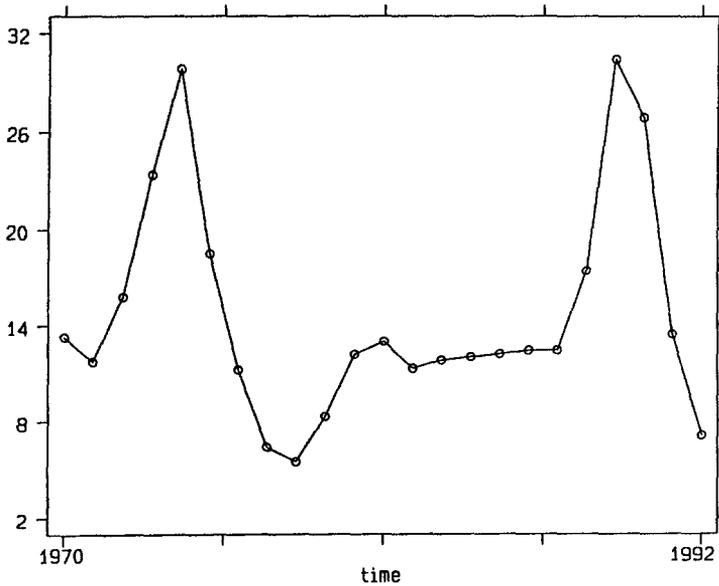


Figure 6. The number of open vacancies, 1970-1992



### 3.2 Some results

The main findings concerning our experiments with the model described in equation (1) are summarized in Table 2. The empirical performance of the long-term unemployment equation given in column 1 is satisfactory. However, this benchmark model seems to suffer from first-order autocorrelation, thus indicating dynamic misspecification. Furthermore, the parameters are not very precise although their signs are in line with a priori assumptions. As can be seen from column 2, the first-order autocorrelation can be eliminated by adding the lagged dependent variable to the equation: its inclusion can be justified by duration effects. The results of columns 1 and 2 imply that at a steady-state level of unemployment of, say, 5 (10) %, the proportion of long-term unemployment is 0.23 (40) %. At a steady-state level of 25 %, the corresponding figure is 85 %, and at unemployment rates exceeding 30 %, the models generate predictions which are above the natural bounds of the dependent variable, i.e. over 100 % of the unemployed are long-term; see Figure 1 in Appendix 1.

Although a situation in which the aggregate unemployment rate exceeds 30 % is very unlikely, the simulations nevertheless suggest that alternative specifications are worth trying. One way to approach this issue is by means of variable transformations. Experiments based on logarithm and power transformations are reported in columns 3 - 5. In each case the performance of the modified model is satisfactory. In particular, the explanatory power of each model is adequate, except equation 5, and there appear to be no signs of dynamic misspecification, conventional tests being passed at the 5 % significance level. The variable transformations do not, however, ensure that the proportion of long-term unemployment remains within its natural bounds: if the unemployment rate exceeds 20 %, the proportion of long-term unemployment becomes negative in the case of the power transformations, whereas the log transformation implies that the share of long-term unemployment never exceeds 60 %; see Figures 2 and 3 in Appendix 1. Since the tracking performance of the model based on the dynamic relation between the proportion of long-term unemployment and the (lagged) aggregate unemployment rate is fairly good, the model can, in principle, be used as a simple device in generating forecasts for the evolution of long-term unemployment. If, however, aggregate unemployment is affected by the lagged proportion of long-term unemployment, the strong exogeneity does not hold and forecasts based on the model are likely to be biased.<sup>60</sup>

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<sup>60</sup> Forecasts based on the specification reported in column 2 for the period 1993-2000 are reported in Appendix 2.

Table 2. The results of the baseline model. Dependent variable is LTU, 1970-1992

Explanatory variable	Specification				
	(1)	(2)	(3)	(4)	(5)
constant	0.081 (3.86)	0.051 (2.33)	0.443 (2.94)	0.024 (1.00)	0.033 (1.38)
LTU <sub>-1</sub>	-	0.47 (2.43)	-	0.473 (3.04)	-
UR	-0.002 (0.49)	0.00 (0.00)	-	-	-
UR <sub>-1</sub>	0.039 (3.71)	0.033 (3.50)	-0.169 (2.02)	0.033 (7.50)	-
UR <sub>-2</sub>	-0.001 (0.14)	-0.017 (1.80)	-0.099 (1.17)	-	-
UR <sub>-1</sub> <sup>2</sup>	-	-	0.049 (2.58)	-0.002 (2.46)	-
UR <sub>-1</sub> <sup>3</sup>	-	-	-0.003 (2.65)	-	-
UR <sub>-2</sub> <sup>2</sup>	-	-	0.027 (1.42)	-0.002 (2.46)	-
UR <sub>-2</sub> <sup>3</sup>	-	-	-0.002 (1.70)	-	-
LUR <sub>-1</sub>	-	-	-	-	0.145 (9.13)
R <sup>2</sup>	0.82	0.87	0.91	0.88	0.81
S.E.E.	0.0102	0.0140	0.0066	0.0092	0.0150
DW	1.15	2.01	1.69	1.99	1.20
LM(4)	3.77	2.18	2.98	1.46	5.32
BJ(2)	0.52	0.53	0.08	0.52	1.28

Next we turn to specifications which account for factors possibly affecting the inflow and outflow rates, as discussed in the previous section. A general-cum-specific modelling strategy was followed. Excluding dummies, a specification with one lag for each explanatory variable was taken as the point of departure. This general specification was sequentially tested until a parsimonious representation was achieved. The main results of this modelling exercise are reported in columns 1 and 2 of Table 3: in column 1, the unemployment and vacancy variables are entered separately into the equation, whereas in column 2 the unemployment-vacancy ratio is used as an explanatory variable. The general conclusion to be drawn from columns 1 and 2 of Table 3 is that the empirical performance of the benchmark model for long-term unemployment is enhanced by theoretical considerations: the fit of the model goes up by 1 - 11 percentage points and there are no signs of misspecification, conventional tests being passed in both cases at the 5 % significance level.

There are a number of interesting issues which are worth emphasizing. Firstly, as column 1 shows, the lagged unemployment rate plays an important role in explaining the development of the proportion of long-term unemployment. To what extent the variable captures demand effects on the one hand and duration effects on the other hand is, however, difficult to assess.<sup>61</sup> Secondly, the lagged vacancy variable, measured by the number of open vacancies in the employment register, enters the equation with a positively signed parameter estimate. This suggests that it is mainly short-term unemployment which is affected by the availability of jobs. This result was confirmed by running an auxiliary regression with total unemployment as the dependent variable: the rise in the number of vacancies reduced overall unemployment.

In column 2, the unemployment rate and vacancy variables are replaced by an alternative demand indicator, the ratio of the number of unemployed to the number of open vacancies. This modification yields one notable change in the results: the variable proxying changes in job security legislation (PROC) enters the equation with a significant parameter estimate, suggesting that the stricter regulation of the employment relationship has brought about a rise in the proportion of long-term unemployment.<sup>62</sup> In other respects the results remain unaltered, i.e. the two remaining variables contributing to long-term unemployment are the coverage of the unemployment compensation system and the proxy for the 1987 Employment Act. We shall now consider these variables in more detail.

The results relating to the role of the unemployment compensation system are, to some extent, in line with previous results obtained from studies analysing unemployment by means of panel data sets.<sup>63</sup> In particular, the results imply that neither the replacement ratio nor the real level of benefits contributes to the evolution

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<sup>61</sup> To capture duration effects, the lagged dependent variable was also included in the model. The variable failed to enter the model with a significant coefficient.

<sup>62</sup> It should also be noted that in this formulation the impact of the vacancy variable on long-term unemployment is now negative.

<sup>63</sup> See Westergård-Nielsen and Pedersen (1993) for a survey.

of the proportion of long-term unemployment. These results are highlighted in columns 3 and 4 which augment the parsimonious specification with the current and lagged replacement ratios and the current and lagged level of real benefits respectively. The results concerning the effects of the maximum duration of unemployment benefits on long-term unemployment are similar: the proxy (DUR) does not enter the equation with a significant coefficient. The only element of the unemployment benefit system which appears to contribute to long-term unemployment is the coverage of the system. The result implies that a rise of 10 percentage points in the proportion of the unemployed that are covered either by unemployment assistance or unemployment insurance benefits increases the share of long-term unemployment by about 1.5 percentage points.

The only dummy entering specification 1 with a significant parameter estimate is that proxying the 1987 Employment Act. The result suggests that the 1987 Act, which was aimed at curbing long-term unemployment, was indeed effective. To be precise, the estimate suggests that in 1990 the number of long-term unemployed would have been 10,000 higher had it not been for the Act. Although this figure is tentative, it is worth noting that the magnitude of the estimate does not vary across the specifications.

As far as the rest of the variables are concerned, the contribution of the mismatch variable (the proportion of workers aged 50-64 in the labour force) turned out to be negligible: only the first difference of the variable entered the equation with a reasonable t-value. Since such specifications were not in general very robust and the exact interpretation of the effects the differenced variable was picking up was unclear, the variable was omitted from the model. The dummy proxying measurement problems induced by the introduction of the 1985 Employment Act did not enter the equation with a significant parameter estimate. The dummy for the reductions in insurance benefits generally showed the expected sign (positive). Since the parameter estimate was imprecise, the variable was omitted from the equation.

Table 3. The results of the augmented model. Dependent variable is LTU, 1970-1992

Explanatory variable	Specification			
	(1)	(2)	(3)	(4)
constant	-0.113 (3.36)	0.038 (0.76)	-0.106 (1.84)	-0.130 (1.46)
LUR <sub>-1</sub>	0.157 (6.69)	-	0.149 (5.35)	0.161 (5.45)
VAC <sub>-1</sub>	0.003 (2.93)	-	0.003 (2.39)	0.003 (2.66)
COV <sub>-1</sub>	0.139 (2.21)	0.196 (2.52)	0.153 (2.11)	0.127 (1.78)
ACT87	-0.099 (4.86)	-0.110 (4.40)	-0.089 (3.51)	-0.099 (4.34)
(U/V) <sub>-1</sub>	-	0.328 (4.01)	-	-
PROT	-	0.07 (2.15)	-	-
$\sum$ RR	-	-	-0.024 (0.29)	-
$\sum$ RB	-	-	-	-0.002 (0.09)
R <sup>2</sup>	0.93	0.92	0.93	0.93
S.E.E.	0.0203	0.0190	0.0213	0.0214
DW	2.46	1.76	2.49	2.43
LM(4)	4.13	0.09	5.01	5.08
BJ(2)	0.72	0.48	0.98	0.58

## 4 Conclusions

The marked rise in unemployment in most OECD countries during the late 1970s and 1980s brought about a substantial increase in the proportion of the long-term unemployed. Finland is now entering a similar stage: along with rising total unemployment, the proportion of long-term unemployment (defined as unemployment lasting six months or longer), which levelled at around 5 % in the late 1980s, had already risen to around 30 % in 1992 and currently is rapidly approaching the 40 % level.

The persistence of high unemployment and the increased duration of spells of unemployment is often attributed to generous levels of unemployment compensation payments, increased job protection, demographic factors and inappropriate labour market policies. Empirical evidence on these issues, based mainly on cross-sections and panels, is relatively scarce and, to some extent, muted. The aim of this study is to contribute to the literature on unemployment by considering a special group of the unemployed - the long-term unemployed - by using aggregate time series data. The time-series approach adopted here should be viewed as complementary to earlier micro-oriented studies.

We began the study by noting that there seems to be a rather strong correlation between the proportion of long-term unemployment and the overall level of unemployment. Consequently, a specification relating long-term unemployment to the aggregate unemployment rate was taken as the benchmark model. The analysis was continued by augmenting this dynamic relation by variables suggested by the theoretical model. The empirical analysis was carried out by examining time series data on long-term unemployment covering the period 1970-1992. The main results of the study can be summarized as follows.

1. There is a robust dynamic relation between long-term unemployment and lagged aggregate unemployment: the higher the aggregate unemployment rate, the higher the proportion of long-term unemployment. The results suggest that this dynamic model can be used, under certain conditions, as a tool to generate predictions regarding the evolution of long-term unemployment.
2. The empirical performance of the dynamic model can be enhanced by modifications suggested by theoretical considerations. In particular, the study implies that the proportion of the long-term unemployed is affected by the coverage of the unemployment compensation system as well as active labour market policies. Furthermore, there is some evidence of the influence of job security provisions on the incidence of long-term unemployment.
3. The study does not provide support for the hypothesis that the proportion of long-term unemployment is affected by the generosity of the unemployment compensation system: both the replacement ratio and the absolute level of benefits fail to contribute to the unemployment equation.

4. As far as policy conclusions are concerned, the results suggest that long-term unemployment can be reduced by employing policy measures which affect overall unemployment and implementing measures specially directed at the long-term unemployed. The claim that the long-term unemployment problem could be tackled by macro-economic policies alone is too far-fetched.

However, the robustness of these conclusions should be evaluated in the light of the following remarks. Firstly, although the investigation period covers 23 years and therefore more than just one business cycle, the size of the sample imposes limits on the analysis. In particular, as frequently in the case of time series analysis, the explanatory variables tend to move in similar ways over time, implying that it is not easy to isolate the contribution of a particular variable. Secondly, the theoretical considerations underpinning the empirical analysis can be subjected to criticism. Thirdly, the empirical counterparts of the theoretical variables have been chosen in a somewhat ad hoc manner: a number of potential variables affecting long-term unemployment are omitted in this study. This remark applies in particular to the measurement of mismatch in the labour market. Fourthly, the measurement of the empirical counterparts of the theoretical variables poses an analogous problem. The replacement ratio, defined as a weighted average of those receiving unemployment insurance benefits and those receiving unemployment assistance benefits over the average net wage at work, is one such example.

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## Dat Appendix

Aggregate unemployment rate:  $UR = U/L$ , where  $U$  is unemployed job seekers known to the employment service and  $L$  is the labour force. Source: Ministry of Labour, Finnish Labour Review.

Long-term unemployment:  $LTU = U_1 / U$ , where  $U_1$  is unemployed job seekers known to the employment service, duration exceeding 26 weeks or more. Source: Ministry of Labour, Finnish Labour Review.

Vacancies:  $VAC$  is the number of open vacancies at the employment service. Source: Ministry of Labour, Finnish Labour Review.

Coverage of the compensation system:  $COV = COV_1 + COV_2$  where  $COV_1$  is the proportion of the unemployed covered by unemployment insurance benefits and  $COV_2$  is the proportion of the unemployed covered by unemployment assistance benefits. Source: Ministry of Labour, Finnish Labour Review.

The proportion of older workers in the labour force:  $AGE$  is the proportion of workers aged 50-64 of the total labour force. Source: Ministry of Labour, Finnish Labour Review.

Replacement ratio:  $RR = \alpha UI + (1-\alpha)UA / W$

Real benefits:  $RB = \alpha UI + (1-\alpha)UA / P$ ,

where

$UI$  = average insurance benefits, net. Source: Ministry of Social Affairs and Health.

$UA$  = average assistance benefits, net. Source: Ministry of Social Affairs and Health.

$\alpha = cov_1 / cov_1 + cov_2$

$W$  = average net wage;  $W = w(1-tax)$  where  $w$  is average earnings in manufacturing and  $tax$  is the average tax rate. Source: Central Statistical Office and Bank of Finland.

$P$  = consumer price index. Source: Central Statistical Office.

$DUR$  = dummy for the maximum duration of unemployment insurance benefits: 0 in 1970-77, 0.5 in 1978-84 and 1 in 1985-92.

$ACT87$  = dummy for the 1987 Employment Act: 0 in 1970-87, 0.33 in 1988, 0.67 in 1989 and 1 in 1990-92.

$PROT$  = dummy for job security: 0 in 1970-77, 0.5 in 1978-85, 0.75 in 1986-88 and 1 in 1989-92.

$D85A$  = dummy for measurements problems induced by the change in the benefit system in 1985, 0 in 1970-84 and 1 in 1985-92.

$D85B$  = dummy for reductions in insurance benefits, 0 in 1970-84 and 1989-1992, 1 in 1985-86 and 0.5 in 1987-88.

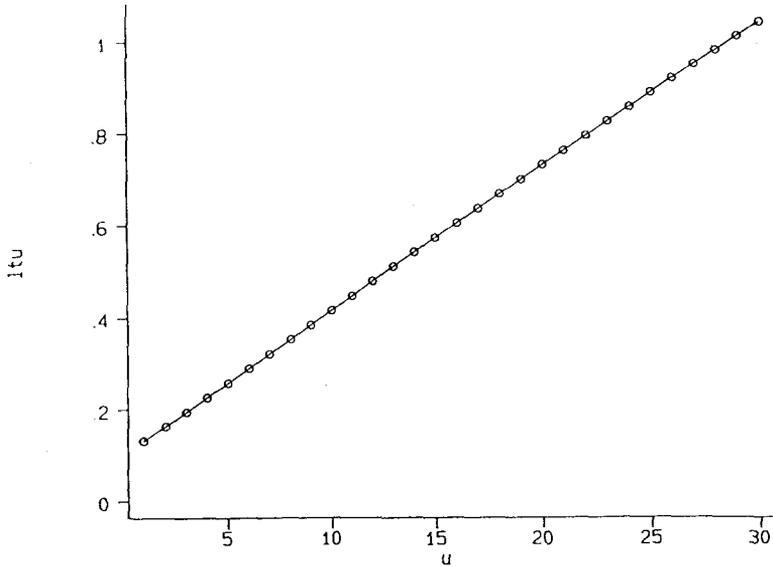
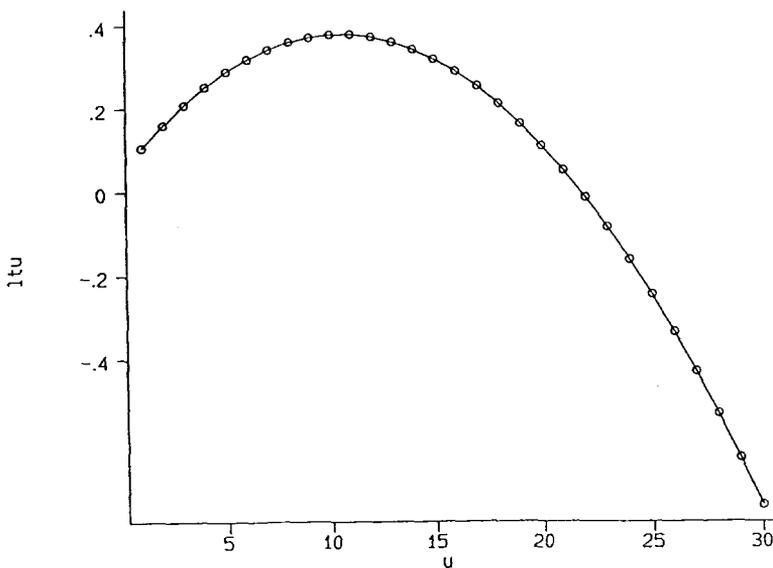
**Appendix 1****Figure 1: Relationship between LTU and the aggregate unemployment rate; specification 1 of Table 2****Figure 2: Relationship between LTU and the aggregate unemployment rate; specification 2 of Table 2**

Figure 3: Relationship between LTU and the aggregate unemployment rate; specification 3 of Table 2

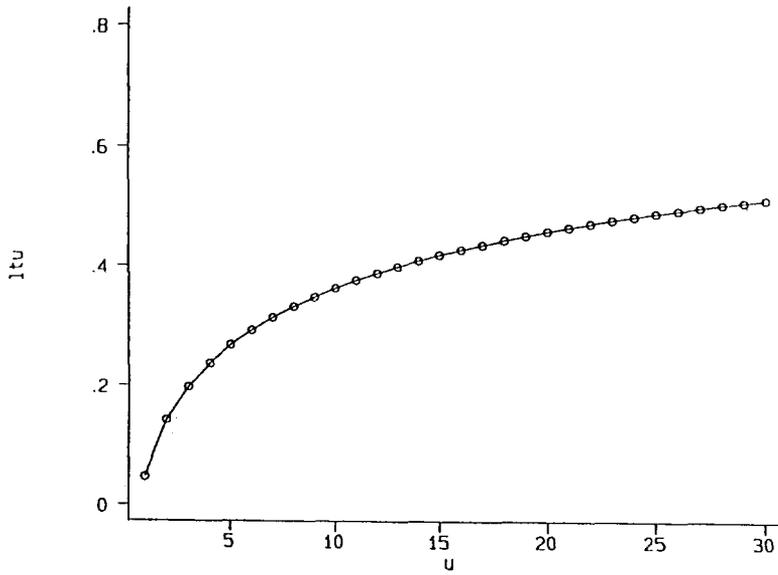
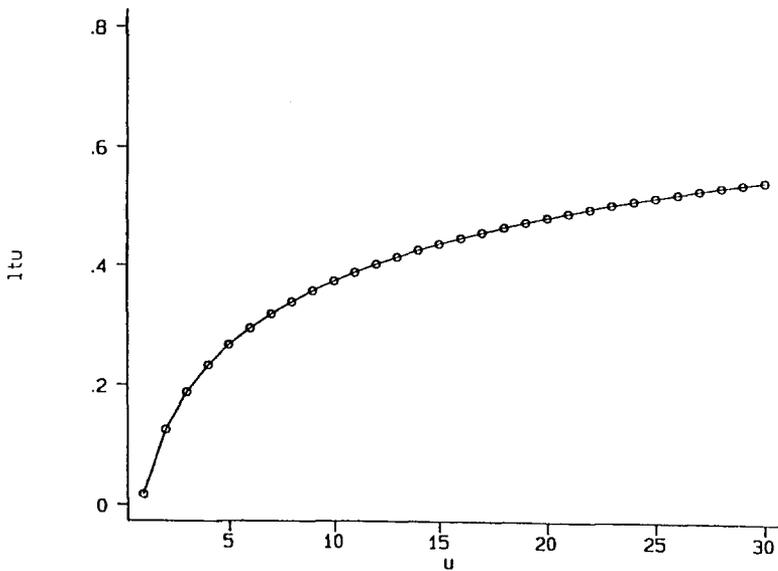
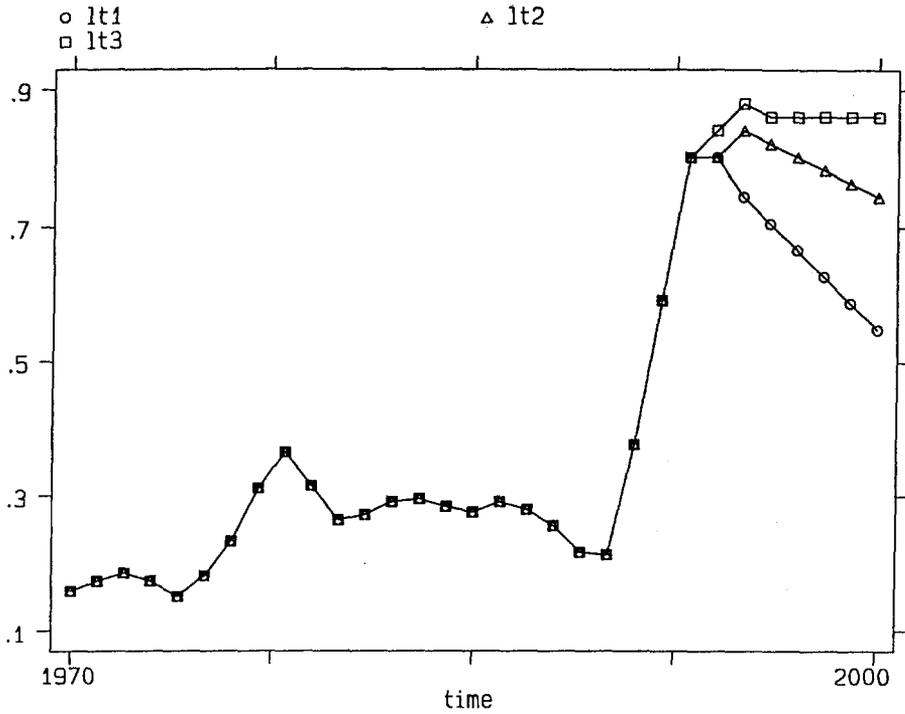


Figure 4: Relationship between LTU and the aggregate unemployment rate; specification 2 of Table 3



## Appendix 2

Figure 1: Some forecasts of long-term unemployment, 1993-2000



Forecasts for LTU are based on the following assumptions of the aggregate unemployment rate

year	U		
	□	△	○
1993	18.5	18.5	18.5
1994	19.5	19.5	18.5
1995	20.5	19.5	17.0
1996	20.0	19.0	16.0
1997	20.0	18.5	15.0
1998	20.0	18.0	14.0
1999	20.0	17.5	13.0
2000	20.0	17.0	12.0

## COMMENT

by **P si Holm, University of Helsinki**

This is an interesting paper which focuses on a very important economic and social problem which has received little attention in Finland. As far as studies of long-term unemployment are concerned, empirical analysis has essentially been micro-oriented. Studies focusing on long-term unemployment from a macroeconomic point of view are rare. Therefore I am very supportive of the aims of the research.

In my view both long-term unemployment and total unemployment represent one of the main economic problems today in Finland. Both of them are endogenous variables and the causality between them is not clear. On the one hand, it is true that increasing unemployment leads to higher long-term unemployment. If we assume, as is implicitly the case in this paper, that each person is either unemployed or employed, then an increase in unemployment implies that the inflow to unemployment is larger than the outflow from unemployment. This means that in a long recession long-term unemployment will increase.

On the other hand, long-term unemployment may cause hysteresis. If the chances of the long-term unemployed of finding a job were very much smaller than those of the short-term unemployed, wages would increase too fast in booms (based on the insider-outsider theory) and thus unemployment would stay too high.

Next turn to the equation presented in table 3. In this equation the long-term employment rate is the dependent variable and the main independent variables are the number of vacancies and the number of unemployed workers. As far as I know this specification is not often used in literature. Layard, Nickell and Jackman estimated an equation where the outflow rate is explained by the number of vacancies and the number of unemployed workers. This comes from the hiring function, which states that the number of hirings, or the outflow from unemployment, per period depends on the number of vacancies and the number of active job-seekers, which, in turn, depends on the total number of unemployed. There is also quite a lot of literature on estimation of the Beveridge curve, where unemployment or long-term unemployment is dependent on the number of vacancies.

Finally I will turn to the empirical results. From table 3 in the paper one can see that the long-term unemployment rate depends positively on the lagged total unemployment rate and the coverage of the unemployment system and negatively on the 1987 Employment Act. The result concerning the vacancy variable is confusing. In the specification (2) the vacancy variable negatively affects the long-term unemployment rate. In the other specifications the vacancy variable has a positive effect.

I am not very familiar with this literature. But, for example, Bourdet and Persson (University of Lund, WPS 6/1992) have analysed long-term unemployment in France

and in Sweden. Their results show that long-term unemployment depends negatively on both the actual and lagged vacancy rate. One notable feature of their model is that the vacancy rate is the only important independent variable. In conclusion I would like to emphasize, however, that this is an important research topic. This type of analysis has some interesting policy implications.

# **UNEMPLOYMENT AND HEALTH: CAUSES AND CONSEQUENCES**

**by Eero Lahelma, University of Helsinki**

## **1 Introduction**

Earning one's living in modern societies is inseparably bound up with holding a (paid) job; it is therefore no wonder that unemployment is the main source of poverty in these societies. The primary interest in this paper, though, is not in the financial problems of unemployed people, but in the association between unemployment and health. In addition to poverty, and at least not directly due to poverty, unemployed people face losses and difficulties that cannot be understood without reference to the broader significance of employment as a social institution.

The main argument of this paper is that employment as an institution imposes upon us a number of psycho-social requirements. These requirements have become an integral part of modern life since the industrial revolution, and their strength lies in the fact that they are combined with as compelling a reason as earning one's living (Jahoda 1982, 59). As employment as an institution occupies such a central place in our lives economically, psychologically and sociologically, we can expect large numbers of unemployed people to experience distress from unemployment.

It has been predicted that 'work societies' will come to an end, but so far this holds true primarily in the sense that large segments of people have become involuntarily unemployed, not in the sense that many people have voluntarily quit looking for a job. In modern societies examples of institutional arrangements for healthy middle-aged people to live outside paid employment are few indeed. The housewife role has been the main arrangement for living outside employment, but even housewives are highly dependent on their husbands' holding jobs. In Finland women nowadays seldom take the housewife role for long periods of time. The main trend has been for more and more women to take jobs, and there are pressures for this development to continue. Until recently new groups have continued to enter the labour market, the largest 'group' being women.

The high significance of paid work in modern societies has been criticized as being repressive for people's own aspirations. 'Useful unemployment' (Illich 1978) and 'dual' models of society (Gorz 1985) have been proposed to abolish the current institutions of employment and unemployment. These alternatives must be regarded in a utopian perspective, and they have little to offer when unemployment is examined as a 'public issue' or as a 'personal trouble' (Mills 1959, 8-9). It is not my aim to undermine the critique of the social organization of employment and unemployment in modern societies. However, we cannot ignore Jahoda's conclusions that the "needs met by employment are probably deeper and more enduring than the institutional arrangements to which we have become accustomed as satisfying them", and that

"these institutional arrangements are so intricately interwoven with the very nature of modern societies that they are likely to endure for a long time, certainly longer than it makes sense to look ahead" (Jahoda 1982, 61).

The importance of financial compensation follows from the above. But it also follows that unemployed people have needs that cannot be met by money alone; even sufficient compensation cannot prevent all the distress experienced by unemployed people. This paper aims, firstly, to understand and specify the pattern of the mental deprivation associated with unemployment; secondly, to give an overview of current evidence of the association of unemployment and mental health; thirdly, to broaden the examination of mental health to the association of unemployment with life styles and mortality; and, finally, to discuss deprivation and adaptation among the unemployed.

## **2 Early research into unemployment and health**

Along with several other scholars of modern society, Freud (1961, 77-80, orig. 1930) laid great emphasis on 'professional work', or what we now call employment or paid work, when he wrote that "no other technique for the conduct of life attaches the individual so firmly to reality as laying emphasis on work; for his work at least gives him a secure place in a portion of reality, in the human community". The best way of testing continuously our ties with reality is to engage in 'professional work' in the community.

According to Freud, (paid) work carries a broad significance ranging from the normative social order to personal identity. Joining the community and engaging in (paid) work is mentally the most economic way of pursuing happiness and avoiding suffering. Nevertheless, difficult social problems arise because "as a path to happiness, work is not highly prized by men" (Freud 1961, 80).

Freud complains that he cannot discuss the significance of (paid) work adequately. Fortunately, other scholars have continued this discussion. All research into the consequences of unemployment must pay tribute to the pioneering work of Marie Jahoda and her colleagues who started their work in the village of Marienthal outside Vienna in 1931. The 'Marienthal study' by Jahoda, Lazarsfeld and Zeisel (1972, orig. 1933) "was to dominate research on unemployment and mental health for the next 60 years and probably beyond" (Fryer 1992).

As early as in 1911 Rowntree and Lasker published their study, "Unemployment. A Social Study", on unemployed people in York. This was the "first systematic sociographic study of unemployment" as noted by Jahoda herself (Jahoda et al 1972, 105). Rowntree's interests were primarily in poverty and the causes of unemployment, whilst Jahoda was interested in mental states and responses to unemployment. What makes the work of Jahoda and her colleagues so important is the thematization of unemployment as a depriving experience, and the subsequent attempts to understand the nature of this deprivation among unemployed people.

### 3 Patterns and conditions of deprivation among the unemployed

This examination emphasizes the significance of employment as a dominant social institution and the losses and suffering caused by exclusion from employment. In addition to this deprivation approach to the consequences of unemployment, an alternative agency or pro-activity approach has been proposed by David Fryer (1992, Fryer and Payne 1986). The agency approach addresses the activities and orientations of the unemployed, and the restrictions on activity faced by the unemployed, for example due to poverty. The agency approach helps us understand differences in responses between unemployed individuals; this approach emphasizes psychological considerations, such as future orientations of unemployed individuals, and (economic) restrictions on these orientations. The deprivation approach emphasizes the sociological considerations of employment and allows a broad examination of the mental and other health consequences of job loss (Jahoda 1992).

The deprivation approach is justified when the aim is a general understanding of the response to unemployment. According to the deprivation approach, as thematized by Jahoda and her colleagues in the Marienthal study in the 1930s (Jahoda et al 1972, 53-54), individual and family responses to unemployment can assume three or four adaptation types: the resigned category is the most common attitude; broken attitudes include individuals and families who are in despair or apathetic; in contrast to the negative attitudes, a minority show an unbroken attitude. Although the majority of responses to unemployment centre on deprivation, neutral and positive responses were identified as well. The fact that there are mentally healthy unemployed people reminds us that unemployment does not lead to mental problems in a deterministic way (Fryer 1992). This is an important point since the consequences of a new wave of mass unemployment from the mid 1970s onwards were often interpreted in a dramatic and deterministic way, particularly in the media (Sinfield 1981, Deacon 1981, Siurala 1982). But research into deprived subgroups in the 1930s also sometimes generalized, implying that "unemployment is a profoundly corrosive experience, undermining personality and atrophying work capacities" (Harrison 1976).

Returning to the problems of employment and unemployment in the beginning of the 1980s, Jahoda (1982, 59, Jahoda and Rush 1980) specified her viewpoints. Employment as a social institution has manifest as well as latent consequences. Earning one's living is an intentional and manifest consequence of employment. Additionally, employment imposes upon the vast majority of employees a number of latent categories of experience, which follow from the structure of the institution of employment in modern societies. Thus in an unintentional way employment influences our lives in five ways: it imposes a daily time structure; it provides social contacts outside the family; it unites individual and collective purposes; it is a source of status and identity; and, finally, it is a source of regularity and being controlled. Jahoda concludes that deprivation among the unemployed occurs to the extent that these latent consequences of employment have become a requirement of modern life, in addition to the manifest (economic) ones.

Peter Warr (1987a, 2-9) has further developed Jahoda's ideas into a more detailed model for use in empirical studies into unemployment and employment. This model contains nine environmental features: opportunity for control, opportunity for skill use, externally generated goals, variety, environmental clarity, availability of money, physical security, opportunity for interpersonal contact, and valued social position. The influence of these environmental features is similar to the effect of vitamins on physical health. Intake of vitamins, such as C and E, up to a certain level, is important for physical health, but not beyond that level. Analogously, the absence of important environmental features is harmful to mental health, whilst their presence beyond a certain level does not yield any further benefit. Intake of some other vitamins, such as A and D, can even be harmful in very large quantities. Analogously, some features contributing to mental health in moderate quantities may be harmful in very large quantities. For example, poverty is likely to have an adverse impact on mental health. Money is a remedy, although we cannot expect mental health to improve in proportion to the amount of money available. However, an excess of money is unlikely to be harmful to mental health. According to another example, the ability to control one's own work is beneficial to a certain extent, but excessive difficult decision-making may be harmful to mental health.

Warr's 'vitamin model' of mental health is context-free, but it has been strongly influenced by his research into unemployment. Job loss is likely to be followed by severe restrictions of scope in terms of the nine environmental features. The 'vitamin model' therefore predicts in a more detailed way than Jahoda's categories the adverse mental consequences of unemployment.

The key message of models such as Jahoda's five categories of experience or Warr's nine environmental features is not that they succeed in showing the exact consequences of employment and unemployment. Their advantage is primarily in showing, firstly, the importance of the institution of employment for modern life and, secondly, what kind of latent losses can be expected to ensue from unemployment beyond the manifest losses related to earning one's living.

Jahoda's and Warr's models are based on a reversal of Freud's above statement that (paid) work provides people's strongest tie to reality, and indicate that these ties tend to loosen in case of job loss. The grip on reality requires continuous testing, and employment provides good opportunities for this in the ways shown, for example by Jahoda's five categories of experience or Warr's nine environmental features. It is not that the unemployed have lost their grip on reality but their opportunities are severely restricted in scope (Jahoda 1982, 60-61).

The above reasoning suggests that the deprivation resulting from unemployment is dependent on a number of conditions, and is unlikely to assume a deterministic development. Unemployment and the suffering associated with it are ultimately socially constructed (Fryer 1992, Lahelma 1992a). As Warr (1983) aptly put it, the consequences of unemployment cannot be "logically entailed by the concept of unemployment".

#### 4 Evidence of health-related aspects of unemployment

In the following, current evidence from research into unemployment and health is summarized. Major emphasis is given to self-reported (non-psychotic) mental health. Many studies have examined this dimension of ill-health, which is likely to be the immediate and dominant response to unemployment. Two other dimensions of health, namely health-related life styles, and in particular drinking behaviour and mortality, deserve to be considered briefly as they suggest divergent patterns of deprivation among the unemployed.

##### Mental health

In the 1980s a number of large-scale surveys were made in various countries comparing unemployed and employed people and using reliable and validated measures of mental health, such as the General Health Questionnaire (GHQ; Goldberg 1972). These studies show that unemployed people have much poorer mental health than their employed counterparts (e.g. Payne, Warr and Hartley 1984, Kessler et al 1987, Bolton and Oatley 1987, Brenna et al 1987, Iversen and Sabroe 1988, Lahelma 1989, Verkleij 1989).

Results from a Finnish study (Lahelma 1989, 1992b) of middle-aged industrial job-seekers showed that about 50 % of the unemployed respondents compared to 20 % or less of the employed respondents suffered from poor mental health, as measured by the GHQ (Table 1). The proportion of unemployed people suffering from poor mental health varies depending on the population studied and the measures used; however, it can be concluded that the mental health of unemployed and employed people differs greatly. Controlling for a number of other factors in logistic regression analysis did not alter the main results (Lahelma 1989). The association between unemployment and poor mental health is likely to be strongest for middle-aged people, and stronger for men than for women, but more research into women's responses to unemployment is needed. The Finnish results are broadly in accordance with results from comparable studies in several industrial countries.

Table 1. Percentage of unemployed and employed men and women reporting poor mental health (3-12 points in the GHQ-12 sum score), according to the first (T1) and the second (T2) mail questionnaire. Source: Lahelma 1989

	Unemployed		Employed		(N)
	Men %	Women %	Men %	Women %	
T1 (1983)	54	37	18	17	(700)
T2 (1984)	49	38	16	20	(698)

An association between unemployment and mental health does not necessarily imply 'social causation', i.e. that unemployment is a cause of the poor mental health of the jobless. The association can as well be explained by a 'drift hypothesis' implying that people with poor health are likely to become unemployed (Jahoda 1992, Dooley et al 1992, Fryer 1992). Studies in which people's basic level of mental health before becoming unemployed is known are rare, and social experimenting with unemployment is morally out of the question. However, in the course of longitudinal studies of unemployed people, re-employment takes place and this gives indirect evidence of the causal mechanisms behind the association between unemployment and poor mental health.

In the Finnish study, a positive development in mental health was associated in a strong and independent way with re-employment (Lahelma 1989, 1992b). A number of other studies have showed a similar re-employment effect; in other words, finding a new job is followed by a rapid and substantial improvement in mental health (Warr and Jackson 1985, Bolton and Oatley 1987, Ensminger and Celentano 1988, Iversen and Sabroe 1988, Kessler et al 1989, Verkleij 1989). This evidence can be taken as supporting the social causation hypothesis: it is the job loss that contributes to the poor mental health observed among the unemployed.

In summary, from Warr's (1985, 1987a, 1987b) empirical and theoretical work and from a number of other longitudinal studies referred to above, three instances of the impact of unemployment can be distinguished:

- (1) Typically, job loss is likely to lead to an immediate impairment of mental health, although a small minority can gain in mental health after losing their job.
- (2) In the case of prolonged unemployment, mental health is likely to remain poor; however, the development of mental health tends to assume a plateau rather than deteriorating continuously. A slight improvement in mental health can be expected over a long period of unemployment. According to Warr (1987a, 232) this kind of adjustment to unemployment occurs about six months after job loss. A small minority of long-term unemployed people are likely to show an accumulation of various troubles, such as problems of mental and physical health, family problems and drinking problems (Mannila 1993).
- (3) Re-entry to paid employment is likely to lead to a rapid and substantial improvement in mental health.

Behind this schematic overview a number of circumstances can be found which are likely to specify individual responses to unemployment and re-employment. Variations in responses are influenced by manifest consequences of unemployment, such as the loss of income, as well as latent consequences, such as Jahoda's five categories of experience or Warr's nine environmental features.

Firstly, the impact of age and gender were already mentioned above, implying that middle-aged men are likely to respond particularly negatively to job loss. Secondly, a number of other 'mechanisms' have been found which can accelerate the deterioration

of mental health among the unemployed. These include financial worries, employment commitment (Warr and Jackson 1985) and inadequate social support (Bolton and Oatley 1987, Spruit 1987, Iversen and Sabroe 1988). However, the picture of the complex of factors interacting with unemployment is rather sporadic. Thirdly, particular subpopulations of unemployed people can show divergent and even contrasting responses to the general one. For example, highly educated or professional unemployed people have shown variable or neutral responses to job loss in terms of their mental health (Schaufeli 1992, Manninen 1993), and some exceptional cases have reported positive responses to unemployment (Fryer and Payne 1984).

On the basis of the main evidence, unemployment typically has a strong harmful impact on mental health. Contrary to expectations, few 'routes' can be found to mediate the mental deterioration among the unemployed. The adverse experience of job loss is typically comprehensive, emphasizing the direct significance of unemployment *per se*. This evidence can be taken as support for Jahoda's and Warr's approaches which emphasize the strong and intrinsic (social-psychological) significance of the institution of employment.

#### Health-related life styles: the case of drinking

In the public consciousness drinking and other health-related life styles have been regarded as mechanisms through which the deprivation of the unemployed manifests itself. In the debate following the rise in unemployment since the mid-1970s, unemployed people have been stigmatized as heavy drinkers and sometimes characterized as having a good time on the 'costa del dole'. The public preoccupation with the life styles of the unemployed has not lacked moralistic and political shades.

In examining the association between drinking behaviour and unemployment, a distinction needs to be made between overall drinking and drinking problems. Results from a Finnish study of industrial job-seekers (Lahelma 1993) provides an example which is in accordance with a number of other studies. As shown in Table 2a, unemployed men and women do not appear to drink more than their employed counterparts. This seems to hold true even in the case of heavy drinking leading to intoxication (Table 2b). Research has even suggested an inverse association between drinking and unemployment, i.e. that employed people drink more than their unemployed counterparts (Lahelma 1993). This is in contrast to popular beliefs that unemployed people drink often and have heavy drinking habits. The main reason for unemployed people drinking less than their employed counterparts is probably a lack of money.

However, being without a job is likely to be associated with drinking problems among men, but not among women (Table 2c). In other words, men report significantly more drinking related health problems when unemployed than when employed.

Table 2. Percentage of unemployed and employed men and women reporting:  
 (a) Drinking at least once a week; (b) Intoxication at least once a month;  
 and (c) Health problems due to drinking over the last 12 months; according  
 to the first (T1) and the second (T2) mail questionnaire. Source: Lahelma  
 1993

	Men		Women	
	Unempl. %	Empl. %	Unempl. %	Empl. %
<b>(a) Drinking at least once a week:</b>				
T1 (1983)	58	53	22	27
T2 (1984)	55	58	24	24
<b>(b) Intoxication at least once a month:</b>				
T1 (1983)	67	65	22	26
T2 (1983)	65	60	23	22
<b>(c) Health problems due to drinking over 12 months:</b>				
T1 (1983)	32	20	10	9
T2 (1984)	35	18	9	6
(N) T1	(268)	(94)	(251)	(90)
(N) T2	(155)	(207)	(121)	220)

The descriptive results presented in Table 2 have been confirmed in multivariate logistic regression analysis reported elsewhere (Lahelma 1993). It is unlikely that unemployment in general increases drinking and in this way accentuates the deprivation of the jobless. However, among unemployed men a group of problem drinkers can be found, although it is unlikely that unemployment has caused their drinking problems. On the contrary, it is highly likely that their drinking behaviour prior to and during unemployment has stigmatized them, and thus contributed to their continued unemployment. Deprivation related to heavy drinking is likely to act as a selective process in the social barring of stigmatized individuals and groups from the labour market.

Consequently, the 'drift hypothesis' rather than the 'social causation hypothesis' explains the association of men's drinking problems with their unemployment. A 'polarization hypothesis' has also been proposed, implying that heavy drinkers may consume increased amounts of alcohol when faced with the difficulties of unemployment, whereas moderate or light drinkers may reduce their consumption as part of a general cut-back in non-essential expenditure (Warr 1987a, 204).

Only a few studies of the association between other health-related behaviours and unemployment are available. One recent study found that drinking and smoking were not associated with unemployment but that putting on weight was (Morris et al 1992). Whether associations between other health-related behaviour and unemployment follow similar or dissimilar patterns to drinking remains largely an open question (see Kalimo and Vuori 1992).

## Mortality

In addition to life styles there has been a public preoccupation with the most extreme deprivation associated with unemployment, namely with mortality. In a sense, death is the final stage of deprivation, going far beyond fatalistic or apathetic attitudes or moods. A deterministic model of deprivation would predict that unemployment together with other unfavourable circumstances is likely, at least in some cases, to end in premature death. According to some earlier predictions, unemployment is likely to contribute to the premature mortality of large numbers of jobless people (Brenner 1973). The public preoccupation with mortality and unemployment has not been without attempts to show the consequences of unemployment in an extremely dramatic light.

Aggregate-level studies of unemployment and mortality (Brenner 1973) are vulnerable to ecological fallacy and cannot establish the association at the individual level. Individual-level studies have shown that premature mortality is more common among unemployed than employed men (Martikainen 1990). According to Martikainen's (1990) study mortality among Finnish unemployed men remained high even after controlling for a number of other variables. The unemployed were particularly prone to die from 'rapid' causes of death, e.g. accidents and violent acts, whereas associations between 'slow' causes of death, e.g. cancer, circulatory and other diseases, and unemployment were much weaker or non-existent. Furthermore, premature death was more common in the case of prolonged unemployment. These results can be taken as suggestions of 'social causation', meaning that unemployment directly or indirectly contributes to excess premature mortality among unemployed men.

Further studies by Valkonen and Martikainen (1994) aiming at a more detailed analysis of the problem of causality have not, however, confirmed that it is unemployment that causes the excess mortality among unemployed men. It is extremely difficult to rule out the possibility of selection, i.e. factors that simultaneously contribute to unemployment and premature death. The direction of causality therefore remains an open question, and it is possible that the 'drift hypothesis' primarily explains the excess premature mortality found among Finnish unemployed men. The authors conclude that "although unemployment has negative effects on the (mental - EL) well-being of individuals, it is normally very exceptionally a catastrophe that kills" (Valkonen and Martikainen 1994).

## **5 Consequences and causes of unemployment: a summary**

A deprivation viewpoint has proved to be useful over sixty years of research into the consequences of unemployment. According to a major conclusion emerging from current research into health and unemployment, various dimensions of health, such as mental health, health-related life-styles and mortality, are likely to respond in divergent ways to job loss.

Firstly, the consequences of unemployment in terms of self-reported mental health are now well researched. Evidence from such research strongly supports the view that unemployment causes mental ill-health, and re-employment causes regained mental health. Thus large segments of unemployed people are affected by mental deprivation due to job loss. The 'mechanism' of 'social causation' would entail a rapid and substantial impairment in mental health in the case of job loss, and a rapid and substantial improvement in mental health in the case of re-gaining a job. Prolonged unemployment is unlikely to impair mental health continuously, rather an adaptation takes place, implying that mental health assumes a plateau or slight improvement over a period of at least two years.

Deprived circumstances among unemployed people do not accumulate in a deterministic way and do not lead to a continuous aggravation of deprivation and finally to the total decline of large numbers of unemployed people. Fortunately, this is not the case, otherwise there would be hundreds of thousands of mentally declined people among us in need of hospitalization (Warr 1987b).

Secondly, evidence has not supported popular views that unemployment provides any major contribution to unhealthy life styles, such as heavy drinking. The 'drift hypothesis' rather than the 'social causation hypothesis' has proved relevant here. Drinking behaviour labelled as deviant stigmatizes job-seekers and prevents their re-employment. It is unlikely that life styles play any important role in the deprivation of large segments of unemployed people.

Thirdly, research has established an association between premature mortality and unemployment. Although it is possible that unemployment contributes to the observed excess premature mortality, we cannot conclude from the present evidence that unemployment *per se* is a major causal factor behind the excess mortality. So far no convincing evidence of the direction of the causality has been established, and the 'drift hypothesis' has to be taken as seriously as the 'social causation hypothesis' in explaining the excess premature mortality among the unemployed (Warr 1983). It is possible that the same individual circumstances that contribute to a high risk of unemployment also contribute to a high risk of morbidity and mortality, and that these selective processes produce the excess mortality observed among the unemployed. If this is the case, it is in accordance with the pattern of mental deprivation among the unemployed; i.e. that as a rule mental deprivation due to job loss does not continue for ever and result in total mental and physical decline.

Extreme responses to unemployment, negative as well as positive, are likely to be uncommon and subject to special conditions. In Jahoda's (1988) words excessive emphasis on extreme responses to unemployment are 'wild exaggerations'; such views may well be applicable in some cases, but have little to do with the predicament of the majority of unemployed people.

On the above evidence unemployment does not enhance bad life styles and does not kill, but 'only' causes mental distress. At first sight this may give a reassuring impression. However, it would be a cynical view to disregard the mental consequences of unemployment just because they "represent a psychological burden

and quality-of-life cost ... not expressed as mental hospital admissions" (see Dooley et al 1992); or because they are not dramatic enough to raise attention in the public (Warr 1987c), or because no serious political problems have arisen (de Witte 1992). This paper ends with some remarks aimed at showing why disregarding the evidence of the (mental) health consequences of unemployment would lead to the omission of important sources of people's prosperity and well-being from policy considerations.

## **6 Patterns of adaptation among the unemployed**

Firstly, the pattern of mental health among the unemployed usually deteriorates in an undramatic way, assuming varying degrees of suffering from such symptoms as depression, anxiety and worthlessness. That is what happens to large numbers of unemployed people who have to adapt to their situations. However, even if the long-term unemployed adapt, it does not mean that their mental problems disappear. In the course of prolonged unemployment mental health typically remains very poor, much worse than among comparable employed people (Warr and Jackson 1987). However, the symptoms of mental health experienced by the unemployed are more obvious and more easily recognized than a second type injury.

The long-term unemployed often tend to show a 'resigned adaptation' to their situations, meaning that adverse mechanisms lie behind their 'adaptation'. Denied the important benefits of employment, such as Jahoda's five categories of experience or Warr's nine environmental features, unemployed people find that the scope of their life is seriously restricted. As a result "many long-term unemployed people have reduced their aspirations and turned in on themselves making them less of a problem to society" (Warr 1987c). According to this pattern of 'resigned adaptation', continuous deprivation is unlikely to take place among the unemployed. However, for unemployed people this adaptation may entail deprivation in a more complex and profound way than is apparent from judgements of their mental health alone.

Secondly, negative concepts of mental health and other dimensions of health have been applied. A positive concept of mental health would not only include adjustment to the environment, but also the potential for 'psychological growth' and 'self-realization' (Warr 1987a, 31-32). Aspiration and involvement in the world are important keys to healthy living. "A slow decline into resigned adaptation which occurs with continuing unemployment is thus harmful in a fundamental way" (Warr 1987c).

Thirdly, this paper has also ignored any examination of the conditions inside the institution of employment, and the impact of unemployment on these conditions. This has been a deliberate choice, but it has not been made to argue that all is well in the world of employment. Jahoda's five latent categories of experience or Warr's nine environmental features can be very poor in employment, so poor even that they sometimes outweigh the consequences of unemployment (see Graetz 1993). However, it is argued that employment seldom has as adverse mental consequences as involuntary unemployment.

Starting from Freud's viewpoint that (paid) work provides a person with his/her strongest tie to reality, Jahoda's and Warr's development of this viewpoint has been highlighted for a better understanding of the significance of employment and unemployment. This allows us to conclude, firstly, that work done in a paid job can be mentally beneficial even if it is not enjoyable, and, secondly, that the loss of a job can be mentally damaging even in the case of a poor job (Warr 1983). However, the aim here is not to argue that the conditions of employment are unimportant for health and well-being. It is just another unfortunate consequence of mass unemployment that problems related to conditions of employment tend to be pushed aside (Jahoda 1982, 61).

Finally, the main focus of attention in this paper has been on (mental) ill-health as a response to unemployment. As observed in the Marienthal study 60 years ago, a minority of 'unbroken' unemployed could be found (Jahoda et al 1972). In the Finnish study referred to above, about half of the unemployed responded neutrally or only slightly negatively in terms of their mental health (Lahelma 1989). Warr (1987b, 1989) calls the situation of those unemployed who take positive steps to develop interests and activities outside the labour market, and who engage in hobbies and voluntary work, 'constructive adaptation'. This non-depriving response to unemployment is, however, uncommon when compared to depriving responses such as 'resigned adaptation'. 'Constructive adaptation' needs to be examined side by side with 'resigned adaptation'. 'Constructive' responses can provide important stimuli for community initiatives to help (long-term) unemployed people. However, whether unemployed people can be encouraged to reduce their personal commitment to employment raises serious moral problems. These problems should be considered against the background that unemployment as a rule is an involuntary situation. Another important issue emerges directly from research: re-employment has proved to be the (main) remedy for poor mental health among the unemployed. Unfortunately, the present labour market situation in Finland, with an unemployment rate as high as 20 % at the end of 1993, makes efforts to tackle unemployment by means of re-employment unrealistic in the short run. Therefore different efforts aimed at alleviating the predicament of the unemployed and activating them should be considered, including sharing existing jobs more equally.

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## **COMMENT**

by **Osmo Kontul** , University of Helsinki

Recently, a research project was carried out in Finland on the effect on public health of the economic recession by a commission of the Department of Public Health of the University of Helsinki and the Ministry for Health and Social Affairs (Kontula and Koskela 1993). A similar project was carried out one year previously (Kontula etc. 1992). One of the main aims of the study was to explain the possible effects of unemployment on health. In 1993, the long-term unemployed were also included in the study.

### **Data**

In both studies, the data was collected in connection with a work force survey conducted by Statistics Finland. In 1993, the data was mainly obtained by telephone interviews at the end of February. The national sample spanned 18 to 74 year-olds. There were 1557 responses, and the response rate was 83.6 percent.

The respondents were divided into five subgroups by employment and unemployment: 1) the employed who did not fear becoming unemployed, 2) the employed who feared unemployment, 3) the employed who had been unemployed earlier during 1992, 4) the unemployed whose unemployment had lasted six months at most, and 5) the unemployed whose unemployment had lasted for more than six months (this was defined as the criterion for long-term unemployment). After this, we investigated whether there were any differences in the state of health and in the mental symptoms of the members of the different subgroups. The chief aim of this comparison was to clarify if the state of health of the unemployed was worse than others' or if they had more mental symptoms than others.

### **Results**

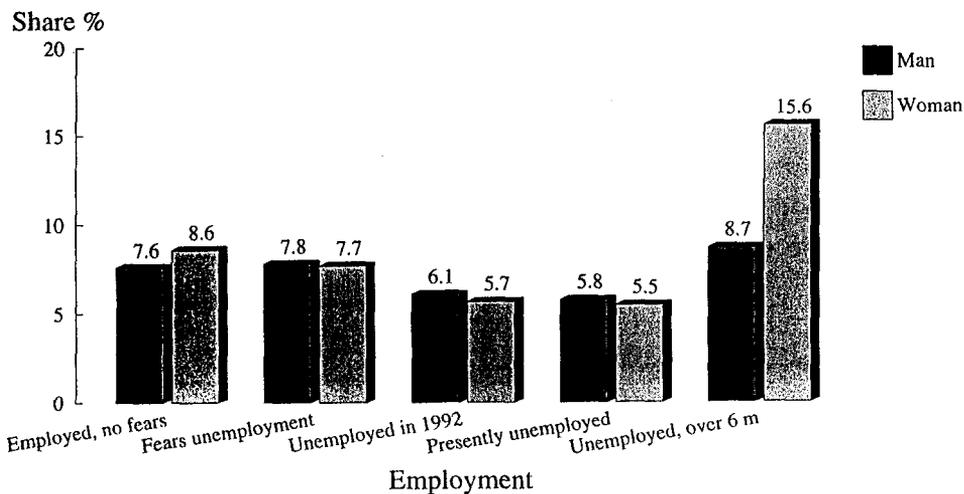
The respondents were asked to evaluate their state of health themselves. Unemployed men generally estimated that their state of health was bad. The long-term unemployed believed their health status to be worse than others'. One in ten considered their health bad. On the other hand, the state of health of those who had been unemployed the previous year was no different from other employed groups.

Figure 1. Poor health by own estimation by employment in 1993



In terms of disabling illnesses diagnosed by a physician, the only outstanding group was long-term unemployed women who suffered from a disabling illness about twice as often as others. With men, the differences in health effects were counterbalanced by the fact that unemployed men are freed from the physical strains which many employed men have in work. Furthermore, it is evident that long-term unemployed men do not visit physicians as readily as women, and so their illnesses have not been diagnosed by physicians although they themselves often consider their state of health to be bad.

Figure 2. Diagnosed handicapping illness by employment in 1993



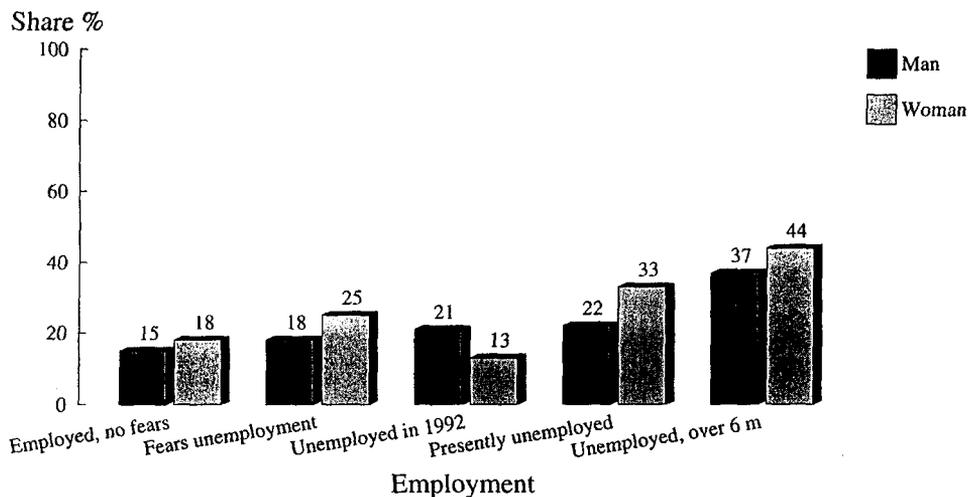
Barbiturates and sedatives were clearly used by the long-term unemployed more frequently than by others. Unemployed men were found to use such medicines more often than employed men. However, even employed women were found to use such substances on a regular basis. Employed women were found to use barbiturates and sedatives more often than employed men. Within the ranks of the unemployed, however, men were found to use them more often than women. The use of alcohol was less common among the unemployed than with others - and least common of all among the long-term unemployed.

Figure 3. Use of barbiturates and sedatives by employment in 1993



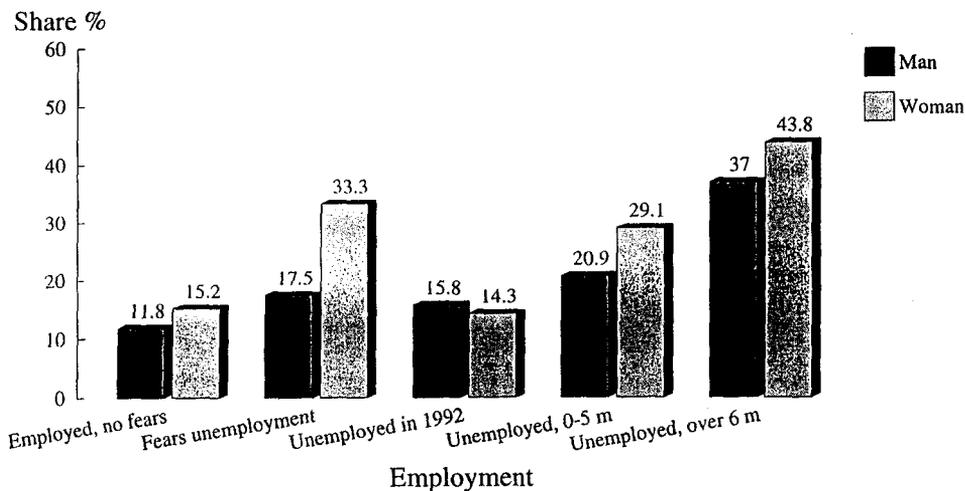
About 40 % of the long-term unemployed considered themselves to have mental symptoms. This proportion was about two times as high as the employed. On their own evaluation, women considered themselves to have mental symptoms more often than men. Those who had been unemployed during the previous year did not have more mental symptoms than other employed groups.

Figure 4. Mental symptoms by employment in 1993



The respondents' state of mental health was also examined using the GHQ scale (General Health Questionnaire). The scale was composed of twelve questions. Mental health problems were considered slight with those who scored positive in at least three out of the 12 questions, reporting an exceptional degree of the symptoms or of the changes in mental state indicated by them.

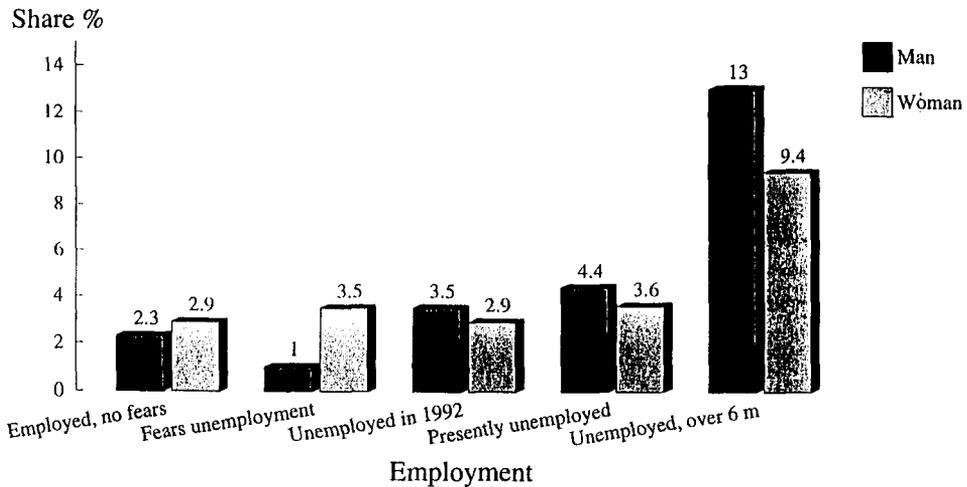
Figure 5. Slight mental problem (GHQ indicator) by employment in 1993



The incidence of slight mental health problems on the basis of the GHQ scale in the various subgroups of employment and unemployment showed reasonable agreement with the distribution of the respondents' own evaluations of their state of mental health. About 40 % of the long-term unemployed had at least a slight mental health problem. These problems were also somewhat more common among women than men. It should be noted that one third of women who feared unemployment had a slight mental health problem. The fear of unemployment among women is evidence of a more general sensitivity which often manifests itself as mental symptoms.

Preoccupation with suicide during the year was found to be about four times as common among long-term unemployed men and three times as common among long-term unemployed women as compared to other groups. Those who had been unemployed for a shorter time did not differ much from the employed in their suicidal thoughts. Suicidal thoughts were not found to become hopeless until despair of being re-employed in the future began to set in.

Figure 6. Thoughts of suicide by employment in 1993



## Discussion

Both in terms of their physical and mental health, the status of health of the unemployed was found to be worse than other groups. The situation of the long-term unemployed was found to be especially difficult. When a poor economic standard of living accompanied long-term unemployment, every second person was found to have mental symptoms. The unemployed often felt worthless and unhappy, and unable to cope with their difficulties. These symptoms and thoughts had clearly intensified

among those who had been interviewed in the previous years. The problems caused by unemployment were often exacerbated by the person's lack of social support or by living in an unsatisfactory relationship. These people experienced increasing hopelessness, and were often depressed. One tenth of the unemployed were entirely without social support. Every fourth unemployed person considered that the economic situation had adversely affected his or her personal relationships.

Is the inferior state of health of the unemployed compared to others the result of unemployment, or does an inferior state of health predispose people to unemployment? With the sharp rise in unemployment it may be expected that unemployment will affect healthier groups who under normal circumstances would not become unemployed, at least not for reasons of health. Contrary to expectations, the health of the unemployed appears to have deteriorated clearly with the growth of unemployment. Thus it can be claimed expressly that unemployment has had an immediate injurious effect on the health of the unemployed. With many people, the adverse effect on health has begun to make itself felt before the termination of employment owing to the fear of impending unemployment. On the other hand, re-employment seems to quickly eliminate the effects of unemployment, (Kontula and Koskela 1993).

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# UNEMPLOYMENT AND THE WAGE STRUCTURE - SOME FINNISH EVIDENCE<sup>64</sup>

by Tor Eriksson, Government Institute for Economic Research

## 1 Introduction

The problems of the labour market can be analysed in terms of wage flexibility at two levels. The first is the level of the whole economy and the concern is then with the general level of real wages and their responsiveness to changes in labour market conditions. The other level is the flexibility (or otherwise) of the relative wages of different groups. In this case the kind of questions we are interested in is: how far do inflexible relative wages account for mismatch or impede structural changes in employment?

In this paper we are going to look at issues of the latter type. There are several dimensions of matching which are important. We shall consider five: industry, region, education, age and gender. For simplicity we take these dimensions one at a time, and consider in each case the demand for the type  $i$  of labour  $D^i$  as determined by its relative wage ( $w_i/w$ ) and the level of aggregate demand ( $y$ ):

$$[1] \quad D^i/D = D^i(w_i/w, y).$$

- +

If the current supply of each type of worker ( $S_i$ ) and relative wages are temporarily given,  $y$  can only expand until full employment is reached in the market for one type of labour. In the other markets there will be structural unemployment.

Two forces can change this. First, relative wages could adjust to reduce imbalances between markets. This requires

$$[2] \quad \Delta \log(w_i/w) = g^i[(D_i/S_i)/(D/S)].$$

+

Second, mobility between sectors can occur (though not between age and sex groups). Mobility is helpful if people leave sectors in relative excess supply and low wage sectors:

$$[3] \quad \Delta \log(S_i/S) = f^i[(D_i/S_i)/(D/S), w_i/w].$$

+ +

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<sup>64</sup> This is a revised version of the paper presented at the Symposium. I thank Juhana Vartiainen for his comments and Lajos Parkatti for the invaluable assistance with the data.

In the following we are going to focus on relative wages, on how they have developed and on possible determinants. Speculations about consequences are left to the conclusions section.

## 2 Changes in the Finnish wage structure

The Finnish wage structure has changed considerably during the last two decades. Data from various sources (see e.g. Leppänen and Tolvanen (1987) and OECD (1993b)) indicate that there was a substantial compression of wages in the 1970s and up to the early 1980s. As can be seen from *Table 1*, which shows the variances of log monthly and annual earnings for the years 1971, 1975, 1980, 1985 and 1990, this development was reversed in the beginning of the mid-eighties. The data used in the table, which will be described in more detail below, consists of fairly large representative samples of wage earners aged 16 to 65. By earnings is meant taxable wage income, i.e., all wages and salaries, taxable fringe benefits and fees.<sup>65</sup> *Table 2* provides another measure of wage dispersion, the log wage differentials between different deciles of the wage distribution. This confirms the pattern observed in *Table 1*. Moreover, we can see that the changes in wage dispersion have occurred on both sides of the median wage.

Large changes in overall wage dispersion is also found *within* almost every age-gender group, industry and educational category; see Eriksson and Jäntti (1993) for detailed descriptions. Decompositions of dispersion show that the striking uniformity of the changes in wage inequality across groups is indeed predominantly due to a rise in inequality within groups, and not between them. In fact, inter-group inequality declined between 1985 and 1990 as overall inequality increased.

These changes in the wage structure, which preceded the current recession, do not appear to be a result of temporary cyclical factors. As a matter of fact, similar changes can be found in several other Western countries, too. Their timing and pattern differ, but there is no doubt that an increase in earnings inequality has occurred in several countries (see e.g. Davis (1992), Katz, Loveman and Blanchflower (1992) and OECD (1993a)). There is no consensus, however, as to what the causes of these changes are.

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<sup>65</sup> Observations for which the monthly wage income was smaller than 100 FIM in 1990 prices were omitted.

Table 1. The variance of log monthly and log annual earnings, 1971-90

	1971*	1975	1980	1985	1990
<b>Monthly earnings:</b>					
All		.330	.255	.222	.421
Males		.329	.265	.216	.413
Females		.267	.199	.185	.378
<b>Annual earnings:</b>					
All	1.566	.827	.654	.455	.978
Males	1.567	.865	.709	.485	1.024
Females	1.473	.703	.533	.370	.875

\* For 1971 the variances of monthly and annual earnings are the same.

It should be noted that from an international perspective the changes in the Finnish wage distribution have been rather large, and this pertains to the early seventies as well as to the late eighties. Thus, for example, the wage differentials are larger in

Table 2. Log wage differentials between deciles, monthly earnings, 1975-90

Dec(i)/dec(j)	1975	1980	1985	1990
<b>Both sexes</b>				
90/10	1.11	0.97	0.92	1.09
90/50	0.59	0.49	0.50	0.56
50/10	0.52	0.48	0.42	0.53
<b>Males</b>				
90/10	1.06	0.94	0.90	1.02
90/50	0.56	0.48	0.49	0.55
50/10	0.50	0.44	0.41	0.47
<b>Females</b>				
90/10	0.93	0.87	0.82	1.02
90/50	0.51	0.41	0.41	0.46
50/10	0.42	0.46	0.41	0.56

Finland than in the other Nordic countries; see Albæk *et al.* (1993)<sup>66</sup>. Thus, despite of heard suggestions to the opposite, there seems to be a substantial degree of flexibility in relative wages in Finland.

### 3 The earnings equations

Next we use four (sometimes five) micro data sets to investigate changes in the earnings distribution during the two preceding decades. We are interested in two things. Firstly, to what extent do changes in the human capital variables and the rewards for these explain the developments in the wage distribution? Secondly, how important are industry and regional effects and changes therein in accounting for the observed changes in wage dispersion?

The data we use are from the bidecennial censuses in Finland from 1970 to 1990. Statistics Finland has compiled a longitudinal<sup>67</sup> data file which contains all individuals who lived in Finland during one of the census years. We have selected a random sample containing about 10 % of the sampling frame (some 6 million people) from these data.<sup>68</sup>

The longitudinal file contains information on the education, occupation and industry of the individuals for each sample year - i.e. 1970, 1975, 1980, 1985 and 1990 - along with their earnings from work<sup>69</sup>, region of residence and work and number of months worked full time, months in part-time work and months unemployed. The first year, 1970, is problematic as the income data for that year is actually from 1971 whilst all the other variables refer to 1970. Moreover, the number of months worked is not available for 1970.

For each sample year we have included in our data set persons who were wage earners and between 16 and 65 years old. All money incomes are deflated to 1990 prices using the cost of living price index.

Since information on working hours is not available, our wage variable is monthly earnings<sup>70</sup>. This implies that in order to have observations on monthly wage rates for 1970 we have to impute months worked as 12 months. This induces some measurement errors in the wage data for that year to an extent for which we have no

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<sup>66</sup> This should not be confused with the dispersion of total household income for which there is some evidence that Finland was less inequal than most other OECD countries in the eighties; see Atkinson, Rainwater and Smeeding (1993).

<sup>67</sup> In this paper we do not exploit the longitudinal character of the data.

<sup>68</sup> Except for Vainiomäki and Laaksonen (1992) and Eriksson (1993a), we are not aware of any other economic analyses carried out using these data. However, their data set does not include observations for 1990.

<sup>69</sup> Earnings from work is equal to taxable wage income, which in turn comprises all wages and salaries, fringe benefits, fees and the sales of timber from private forest.

<sup>70</sup> The alternative is annual income, but this is likely to be affected by differences and changes in the labour supply.

information and so the data should be viewed with considerable caution. We will, in fact consider them only occasionally. For every sample year, high incomes (the highest percentage) have been top-coded. In place of the actual incomes for these, we have imputed the mean above the top-code cut-offs.

The size of our samples in cross-sectional analyses are 110.949, 141.410, 174.363, 183.965, and 202.381 for 1970, 1975, 1980, 1985, and 1990, respectively.

In order to address the two types of questions mentioned above we estimate for each sample year a fairly conventional earnings equation :

$$[4] \quad \ln W_i = X_i\beta + I_i\alpha + R_i\gamma + \varepsilon_i,$$

where  $X$  is a vector of individual traits and human capital variables, and  $I$  and  $R$  are the industry and region in which the individual works<sup>71</sup>. We have used age as a substitute for (imputed years of) experience (and its square) and educational levels instead of (imputed) years of schooling because it leads to a slightly better fit. The estimates of the coefficients to the other variables are not sensitive to this specification choice, however. The estimation results are set out in *Table 3*.

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<sup>71</sup> Note that region refers to the location of the job, *not* the worker.

Table 3. Earnings equations

Dependent variable: log monthly earnings					
	<u>1971</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
Intercept	8.603 (0.012)	8.916 (0.007)	8.982 (0.006)	9.093 (0.006)	9.212 (0.008)
Female	-0.390 (0.005)	-0.323 (0.003)	-0.284 (0.002)	-0.281 (0.002)	-0.308 (0.003)
Unmarried	-0.157 (0.005)	-0.070 (0.003)	-0.037 (0.002)	-0.012 (0.002)	-0.011 (0.002)
<u>Schooling:</u>					
Compulsory or lower secondary	omitted				
Higher secondary	0.373 (0.007)	0.216 (0.004)	0.167 (0.003)	0.157 (0.002)	0.151 (0.003)
Lower university	0.669 (0.010)	0.428 (0.006)	0.384 (0.004)	0.350 (0.004)	0.362 (0.004)
Higher university	0.980 (0.014)	0.675 (0.008)	0.609 (0.006)	0.549 (0.004)	0.561 (0.005)
Post-graduate	1.071 (0.041)	0.783 (0.025)	0.751 (0.018)	0.628 (0.015)	0.701 (0.016)
<u>Age:</u>					
16-20	-0.580 (0.009)	-0.297 (0.006)	-0.407 (0.005)	-0.419 (0.006)	-0.655 (0.008)
21-25	-0.141 (0.008)	-0.132 (0.005)	-0.231 (0.004)	-0.284 (0.004)	-0.305 (0.006)
26-30	-0.009 (0.009)	-0.067 (0.005)	-0.152 (0.004)	-0.200 (0.004)	-0.207 (0.005)
31-35	0.024 (0.009)	-0.003 (0.006)	-0.071 (0.004)	-0.113 (0.004)	-0.126 (0.005)
36-40	0.046 (0.009)	0.010 (0.006)	-0.008 (0.005)	-0.039 (0.004)	-0.063 (0.005)
41-45	0.029 (0.009)	0.014 (0.006)	-0.003 (0.005)	0.007 (0.005)	-0.015 (0.005)
46-50	omitted				

51-55	-0.053 (0.011)	-0.022 (0.007)	-0.027 (0.006)	-0.000 (0.005)	-0.037 (0.007)
56-60	-0.145 (0.012)	-0.059 (0.008)	-0.036 (0.006)	-0.014 (0.006)	-0.073 (0.008)
61-65	-0.316 (0.015)	-0.102 (0.011)	-0.111 (0.011)	-0.062 (0.011)	-0.216 (0.013)

Industry:

Agriculture	-0.664 (0.010)	-0.300 (0.008)	-0.408 (0.006)	-0.286 (0.006)	-0.284 (0.010)
Mining	-0.002 (0.028)	0.007 (0.017)	-0.033 (0.013)	-0.014 (0.014)	-0.041 (0.023)
Textiles	-0.078 (0.011)	-0.113 (0.007)	-0.157 (0.006)	-0.174 (0.006)	-0.210 (0.011)
Forestry	omitted				
Chemical	0.006 (0.014)	0.000 (0.009)	-0.042 (0.007)	-0.039 (0.007)	-0.009 (0.010)
Metal	-0.034 (0.009)	0.027 (0.005)	-0.011 (0.004)	-0.045 (0.004)	-0.037 (0.007)
Food and beverages	-0.038 (0.011)	-0.052 (0.007)	-0.044 (0.006)	-0.061 (0.006)	-0.034 (0.009)
Other manufacture	-0.088 (0.015)	-0.026 (0.010)	-0.079 (0.008)	-0.099 (0.008)	-0.028 (0.008)
Public utilities	-0.064 (0.016)	0.035 (0.009)	-0.051 (0.007)	-0.070 (0.007)	0.016 (0.012)
Housing construction	-0.169 (0.008)	0.043 (0.006)	-0.110 (0.005)	-0.080 (0.005)	-0.039 (0.007)
Trade, commerce	-0.111 (0.008)	-0.090 (0.005)	-0.103 (0.004)	-0.107 (0.004)	-0.103 (0.007)
Transport	-0.053 (0.009)	-0.016 (0.006)	-0.046 (0.005)	-0.081 (0.005)	-0.032 (0.008)
Private sector services	-0.260 (0.009)	-0.133 (0.006)	-0.085 (0.005)	-0.055 (0.005)	-0.076 (0.007)
Teaching, health care	0.038 (0.009)	0.055 (0.006)	-0.091 (0.004)	-0.098 (0.004)	-0.012 (0.007)
Other public services	0.028 (0.010)	0.020 (0.006)	-0.051 (0.005)	-0.088 (0.005)	-0.104 (0.007)

Region:

Uusimaa	0.257 (0.008)	0.185 (0.005)	0.126 (0.004)	0.138 (0.004)	0.144 (0.005)
Turku and Pori	0.095 (0.009)	0.064 (0.006)	0.039 (0.004)	0.037 (0.004)	0.043 (0.005)
Häme	0.108 (0.009)	0.062 (0.005)	0.043 (0.004)	0.049 (0.004)	0.055 (0.005)
Kyme	0.117 (0.010)	0.073 (0.007)	0.068 (0.005)	0.068 (0.005)	0.072 (0.006)
Mikkeli	-0.008 (0.012)	-0.014 (0.008)	-0.012 (0.006)	-0.002 (0.006)	-0.024 (0.008)
North-Carelia	-0.025 (0.013)	0.027 (0.008)	0.026 (0.006)	0.019 (0.006)	0.023 (0.008)
Kuopio	-0.007 (0.011)	0.011 (0.007)	0.023 (0.006)	0.025 (0.005)	0.034 (0.007)
Keski-Suomi		omitted			
Vaasa	0.005 (0.011)	0.016 (0.007)	0.024 (0.006)	0.027 (0.005)	-0.157 (0.008)
Oulu	0.007 (0.010)	0.065 (0.006)	0.047 (0.005)	0.039 (0.004)	0.037 (0.006)
Lapland	0.077 (0.012)	0.118 (0.007)	0.076 (0.006)	0.075 (0.005)	0.071 (0.007)
Åland	0.238 (0.037)	0.193 (0.023)	0.116 (0.018)	0.131 (0.016)	0.190 (0.017)
R <sup>2</sup> (adj)	0.387	0.313	0.318	0.323	0.244
N of obs	110.949	141.410	174.363	183.965	202.381
$\sigma_e$	0.372	0.195	0.160	0.143	0.257

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We may first note that the largest changes in the estimates have occurred at either end of our observation period. However, for the data quality reasons already mentioned, we hesitate in making any firm conclusions about changes at the beginning of the seventies. It can also be seen that the gender wage differential narrowed somewhat during the seventies and that there has been a steady decline in the "marriage premium".

The reward for schooling declines up to the mid-eighties after which there is a slight reversal. The advantage of having a university degree (or equivalent) is, however,

significantly lower in 1990 than in 1975. The returns on experience, here measured by age, have changed considerably, and especially in the rising part of the age-earnings profile. The decline in wage dispersion is thus a net effect of steeper age-earnings profiles and falling returns on education.

A noteworthy feature of the results is that the explanatory power of the wage equation (i.e.  $R^2$ ) falls as wage dispersion increases. This indicates that changes in productive characteristics (at least not those we have included) and changes in the rewards for them have not caused the increase in wage dispersion<sup>72</sup>.

#### 4 Different dimensions of relative wages

In the following we will take a closer look at four dimensions of the Finnish wage structure making use of the earnings equations estimates presented above. We begin with *education*. Educational wage differentials decline considerably during the period under study. It is especially worth noting that the rewards for schooling increase only slightly between 1985 and 1990<sup>73, 74</sup>, at the same time as the dispersion of wage income is increasing.

It is frequently claimed that along with technological progress there has been an increase in the relative demand for highly educated labour. The evidence from a simple "fixed manpower requirements model" à la Katz and Murphy (1992) set out in *Table 4* is that there have indeed been skill-biased demand shifts. The growth in relative demand for educated labour was faster in the seventies, however, and there is no clear association between changes in relative demand and changes in returns on university education. Part of the explanation for the movements observed is likely to be found in changes on the supply side, especially the increase in the relative supply of workers with more than lower or higher secondary schooling. The proportion of the labour force without vocational or higher education has fallen from about 70 % in 1970 to 55 % in 1980 and further to 40 % in 1990.

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<sup>72</sup> This is a finding common to several studies which study wage inequality in the eighties; see for example Davis (1992).

<sup>73</sup> As it is conceivable that changes in the returns on schooling should be more visible for young people who have recently entered the labour market, we have re-estimated the earnings equations on sub-samples consisting only of those aged 25 to 36. We obtained remarkably similar schooling effects as for the whole samples.

<sup>74</sup> A seldomly recognized fact - see Schmitt (1993) for an exception - is that with involuntary unemployment, the rewards for education has two components: a higher wage while employed and a higher probability of finding and keeping a job. We have applied the same adjustment procedure as Schmitt, that is, multiplied the schooling effects for each education category by a relative employment rate. Unfortunately data for unemployment by education is only available for the eighties. For this period it turns out that the changes in returns on education are hardly affected at all when differences in employment opportunities are accounted for. As a matter of fact, they declined a little due to the greater improvement in the unemployment rates of persons with little education.

Table 4. Demand shift indices, 1970-90\*

Level of education	70/75	75/80	80/85	85/90
Low or none	-.010	-.018	-.001	-.012
Secondary	.010	.003	.009	-.009
Higher	.010	.009	.011	.001

Source: own computations (using data on nine sectors) from time-series tables from the 1990 Population Census.

\*The figures in the table are changes in relative demand calculated as

$$d_{it} = \sum_j \alpha_{kj} (E_j/E)_t,$$

where  $\alpha_{kj}$  is a fixed labour skill coefficient (the ratio of number of employees in education  $k$  and sector  $j$  to total number of employees in  $j$ ) and  $E_j$  is employment in sector  $j$ .

Changes in wage differentials between *age* groups are often considered to be particularly important for the development of youth unemployment. *Table 5*, panel A gives the raw wage differential between age groups as percentual deviations from the mean wage. Panel B contains the age effects (also as deviations from the mean) taken from the earnings equations in *Table 3*, above. The raw wage differentials and the age "premia" display a similar pattern. The increasing parts of the age-earnings profiles have become steeper at the same time as the declining part - with the exception of 1990 - has become flatter<sup>75</sup>.

Many discussions of youth unemployment take a declining youth/adult wage differential as a fact, and as an important causal factor of youth unemployment. However, the differentials have actually widened. On the other hand, youth unemployment rates relative to that for prime-aged workers have also been declining in a trendwise fashion from the mid-1970s; see Eriksson (1993b). Rising experience differentials as from the mid-1970s have also been documented for several other countries (with Sweden being an exception); see Davis (1992).

<sup>75</sup> The figures in *Table 4* depend, of course, on how the average wage has developed. We have also calculated the ratios between young workers' (16-20 and 21-25) and prime-age (36-40) workers' wages (controlling for all the other explanatory variables in the earnings equation). They tell the same story as panel B in *Table 4*: relative youth wages have plummeted since the middle of the 1970s

	1975	1980	1985	1990
16-20/36-40	.736	.671	.684	.553
21-25/36-40	.868	.800	.783	.785

Table 5. Wage differentials between age groups

A. Raw wage differentials between age groups (deviations from mean)					
Age group	1971	1975	1980	1985	1990
16-20	-0.528	-0.278	-0.315	-0.314	-0.466
21-25	-0.040	-0.080	-0.133	-0.176	-0.183
26-30	0.274	0.076	-0.080	-0.049	-0.056
31-35	0.313	0.142	0.121	0.054	0.030
36-40	0.312	0.133	0.162	0.143	0.093
41-45	0.267	0.122	0.137	0.157	0.151
46-50	0.205	0.098	0.127	0.121	0.129
51-55	0.154	0.067	0.093	0.114	0.059
56-60	0.035	0.049	0.073	0.109	0.023
61-65	-0.112	-0.003	0.029	0.043	-0.086

B. Age premiums (employment weighted means), 1971-90*					
Age group	1971	1975	1980	1985	1990
16-20	-0.436	-0.213	-0.277	-0.283	-0.518
21-25	0.003	-0.048	-0.101	-0.148	-0.168
26-30	0.135	0.017	-0.022	-0.064	-0.070
31-35	0.168	0.081	0.059	0.023	0.011
36-40	0.190	0.094	0.122	0.097	0.074
41-45	0.173	0.098	0.127	0.143	0.122
46-50	0.144	0.084	0.130	0.136	0.137
51-55	0.091	0.062	0.103	0.136	0.100
56-60	-0.001	0.025	0.094	0.122	0.064
61-65	-0.172	-0.018	0.019	0.074	-0.079

\*The premia have been calculated by setting sum of the weighted regression coefficients equal to zero, i.e. the premium for group  $j$  is:  $\beta_j - \sum s_j \beta_j$ , where  $s_j$  is group  $j$ 's employment share (in the sample).

The fall in youth relative wages occurs during a period of trend decline in the relative supply of young workers, whilst the opposite holds for adults. Thus, relative supply changes (coupled with non-neutral demand shifts) do not suggest themselves as an immediate explanation for the movements in the age effects.

The dimension of relative wage flexibility which has received most attention in recent discussions (both in international and Finnish discussion) is *industry*. Several studies from a large number of countries have documented that there are large inter-industry wage differentials which persist for very long periods of time; see for example, Gittleman and Wolff (1993). Three issues are of special interest here. Firstly, how much of these differences is due to differences in productive characteristics and working conditions? Secondly, to what extent are the differentials persistent over time? Thirdly, why do they exist (and persist)?

Past analysis on Finnish data - Vainiomäki and Laaksonen (1992), Asplund (1993), Maliranta (1992) and Eriksson (1991) - have shown that industry affiliation is an important determinant of individuals' wages even after controlling for observable human capital and other personal characteristics. The latter variables do, however, explain a fairly large proportion of the inter-industry wage differentials.

Inter-industry wage differentials have, moreover, shown to be highly persistent over a 10-15 year period (Vainiomäki and Laaksonen (1992; see also Laaksonen 1984). Vainiomäki and Laaksonen (1992) and Asplund (1993) examine the correlations between industry wage premia and a number of industry characteristics. According to their results, the proportion of males and industry-specific productivity measures are positively correlated with the premia. Asplund finds that the average number of years of schooling is an additional important determinant. These findings that wages are responsive to industry-specific factors which have been documented also for several other countries - see Krueger and Summers (1987) and Gittleman and Wolff (1993) - indicate that there may be insider effects in wage determination.

Large and persistent inter-industry wage differentials which cannot be explained by differences in labour quality and working conditions may according to Summers (1986) be important for our understanding of the unemployment problem. The differentials create incentives for pro-longed job search. The argument is basically that the dispersion of wages tends to raise the reservation wage and hence extend the duration of unemployment. Large wage differentials can therefore be associated with high "wait" unemployment. In this context it is interesting to note that inter-industry wage differentials have been found to be much smaller in Sweden (Edin and Zetterberg (1992)) (but also in Finland; see Eriksson (1991)) than in the US.

The industry wage premia, calculated from our earnings equations and set out in *Table 6*, correspond closely to those in Vainiomäki and Laaksonen (1992) and Asplund (1993). (The major differences from Vainiomäki and Laaksonen are due to the fact that we have used broader industrial categories. The data source are the same.) Entering the observations for 1990 does not change the picture given by previous studies. Note also that the ranking of industries by their average wages is only marginally altered by the inclusion of gender, age, schooling and regional variables.

As can be seen directly from the table, the industry wage premia are highly persistent over time. Consequently, the correlations between industry premia from different years are quite high:

	1975	1980	1985
1980	.835		
1985	.766	.939	
1990	.862	.871	.885

Although industry wage premia are highly persistent, it may be of interest to examine whether they respond to industry-specific labour market conditions. For that purpose we pooled our premium estimates from the four last cross-sections and used time dummies to capture general labour market changes and fixed effects in the hope that these would capture the industry characteristics studied by others. The results are in *Table 7*.

Table 6. Industry wage premia 1971-1990 (employment weighted means)

Industry	1971	1975	1980	1985	1990
Agriculture	-0.556	-0.273	-0.322	-0.201	-0.219
Mining	0.106	0.020	0.053	0.071	0.024
Textile, clothing	0.030	-0.086	-0.071	-0.089	-0.145
Forestry	0.108	0.027	0.086	0.085	0.065
Chemical	0.114	0.027	0.044	0.046	0.056
Metal	0.074	0.054	0.075	0.040	0.028
Food	0.070	0.025	0.042	0.024	0.031
Other manufacture	0.020	0.001	0.060	0.006	0.037
Public utilities	0.044	0.062	0.035	0.015	0.081
Housing construction	-0.061	0.070	-0.024	0.005	0.026
Trade, commerce	-0.003	-0.063	-0.017	-0.018	-0.038
Transport	0.055	0.011	0.040	0.004	0.033
Private sector services	-0.152	-0.106	0.001	0.030	-0.011
Teaching, health care	0.146	0.082	-0.005	-0.013	0.053
Other public services	0.136	0.047	0.025	-0.003	-0.039

The estimate for the industry unemployment rate is not well determined. Quantitatively, the effect is also quite small. Interacting the unemployment rate with a dummy equal to unity in 1985 and 1990 gives rise to larger coefficients for these

years indicating that industry-specific labour market conditions may have become more important. It should be noted, however, that the fixed effects are the important variables here. The time period dummies were not significant. A much neglected dimension of relative wages, with the exception of the large amount of literature on migration, is regions. And yet, as has recently been pointed out by Calmfors (1993), wage bargaining at the regional level is not uncommon in continental Europe. Furthermore, the internalization of employment externalities which has been associated with centralized bargaining is likely to be present in wage bargaining at regional levels, too.

Table 7. Industry wage premia equations, 1975-90\*

	(1)	(2)
log ( $u_i/u$ )	-0.011 (1.69)	-0.012 (1.74)
(D85-90)log ( $u_i/u$ )		-0.010 (2.12)
R <sup>2</sup> (adj)	0.60	0.64
Number of obs	60	60

\* Time period and fixed effects are included. Absolute t-statistics in brackets.

Another reason for considering regional wage differentials is that regional imbalances generally have been a more serious problem than industrial imbalances. As can be seen from *Table 8*, the wage differentials, both with and without controls, are with a few exceptions rather small. This is especially the case in comparison with differences in regional unemployment rates, for instance. The ranking and magnitude of "regional wage premia" are strikingly persistent over time<sup>76</sup>. It is worth noting that to a much smaller extent than for industry, the regional differences, are due to differences in human capital and the other explanatory variables (including industry).

<sup>76</sup> All correlations between the "raw" differentials exceeded .9 and the correlations between the regional premia all exceeded .95 !

Table 8. Regional wage premia, 1971-90 (employment weighted means)

Region	1971	1975	1980	1985	1990
Uusimaa	0.139	0.095	0.063	0.069	0.080
Turku and Pori	-0.023	-0.026	-0.024	-0.032	-0.021
Häme	-0.010	-0.028	-0.020	-0.020	-0.009
Kyme	-0.001	-0.017	0.005	-0.001	0.008
Mikkeli	-0.126	-0.104	-0.075	-0.071	-0.088
North Carelia	-0.143	-0.063	-0.037	-0.050	-0.041
Kuopio	-0.125	-0.079	-0.040	-0.044	-0.030
Keski-Suomi	-0.118	-0.090	-0.063	-0.069	-0.064
Vaasa	-0.113	-0.074	-0.039	-0.042	-0.043
Oulu	-0.111	-0.025	-0.016	-0.030	-0.027
Lapland	-0.041	0.028	0.013	0.006	0.007
Åland	0.120	0.103	0.053	0.062	0.126

As in the case of inter-industry wage differentials, we also regressed the regional wage premia on regional unemployment rates (as deviations from the overall rate) allowing for fixed effects as well as time dummies. (Initially we also included regional employment growth rates, but they were never significant.) *Table 9* gives the results. Again, interacting the unemployment rate with a dummy for 1985 and 1990 sharpened the coefficient estimates somewhat.

Table 9. Regional wage premia equations, 1975-90

	(1)	(2)
$\log(u_t/u)$	-0.035 (1.54)	-0.036 (1.81)
$D(85,90) \log(u_t/u)$		-0.022 (2.84)
$R^2(\text{adj})$	0.87	0.93
Number of obs	48	48

Time and regional fixed effects are included.

The finding of an increase in the effect of regional unemployment rates in the 1980s is interesting and could be interpreted as a result of wage bargaining becoming *de facto* somewhat more decentralized.

## 5 Concluding remarks

Fifteen years of pay compression followed by widening wage differentials during the late 1980s have involved substantial changes in wage differentials across gender, age and educational groups. The decreases in the gender gap and in the returns to schooling together with the increasing age effects (presumably reflecting larger returns to experience) make up the pay compression. Behind the recent increase in wage dispersion there are increases in all effects, but a very small effect for education<sup>77</sup>. Although some additional work on the usefulness of simple models building on changes in relative supplies could throw some light on events, it does not seem to us that they could be but a minor part of the story. Egalitarian wage policies resulting in wage bargains which limited pay increases to a uniform nominal amount, which were common in the 1970s, seem to have had an independent role, too.

Inter-industry and regional wage differentials have remained remarkably stable both during both periods of pay compression and increased dispersion. Inter-industry differences are to a great degree due to differences in productive characteristics, whereas regional differentials are not. Both types of differentials are highly persistent, but there is some evidence that they are affected by industry- or region-specific labour market conditions. Thus, our analysis seems to give some additional support to Blanchflower and Oswald's (1992) hypothesis that there is universal inverse relationship between pay and the level of industry or regional unemployment, a wage curve.

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<sup>77</sup> In fact, the biggest factor is the one we are totally ignorant about: within group changes. Note that this means that discussions in media as well as in this paper are in a way barking up the wrong tree.

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# HUMAN CAPITAL AND INDUSTRY WAGE DIFFERENTIALS IN FINLAND

by Rita Asplund, The Research Institute of the Finnish Economy

## 1 Introduction

There is a growing body of international literature on large and persistent inter-industry wage differentials, which exist even after controlling for differences in worker and job characteristics between industries. Moreover, these differentials have been found to be remarkably stable over time and very similar across countries despite differing institutional labour market characteristics.

The empirically established stability of inter-industry wage differentials is clearly at variance with the standard competitive model of the labour market, according to which competition between industries will force equilibrium wages to reflect merely differentials compensating for differences in personal and job-related characteristics between industries. More exactly, although compensating differentials are without doubt important determinants of industry wages, this hypothesis can only partially explain the substantial, mostly highly significant and very stable wage differentials observed across industries.

Several theoretical hypotheses have been put forward as an explanation of the persistence of non-competitive wage differentials in situations involving involuntary unemployment. The most prominent explanations are probably offered by the efficiency wage theory, the search theory, the insider-outsider hypothesis, and bargaining models.

There is so far very little empirical evidence on wage differentials between Finnish industries based on individual data. Vainiomäki & Laaksonen (1992) estimate inter-industry wage differentials for the private sector from wage-level and first-differenced wage equations using longitudinal population census data covering the period 1975-85. Using labour force survey data for 1987, Asplund (1993a) analyses wage differentials across Finnish industries for all employees and separately for female and male employees. A distinction is also made between the labour market as a whole and the private-sector labour market. Both studies also attempt to explain industry wage premiums on the basis of industry characteristics.

The next section reproduces selected results on inter-industry wage differentials reported in the study by Asplund (1993a). Section 3 compares estimated wage differentials across industries in four Nordic countries. Section 4 deals with the development of relative wages between and within crucial categories of non-manual and manual workers in Finnish private-sector industry in the period 1980-92. Some concluding remarks are given in Section 5.

## 2 Estimated wage differentials between Finnish industries

The empirical evidence on inter-industry wage differentials in Finland discussed below is based on results presented in Asplund (1993a). The study uses a frequently adopted approach to assess the impact and importance of inter-industry wage differentials from cross-sectional micro-level data, in this case from labour force survey data for 1987 conducted by Statistics Finland.

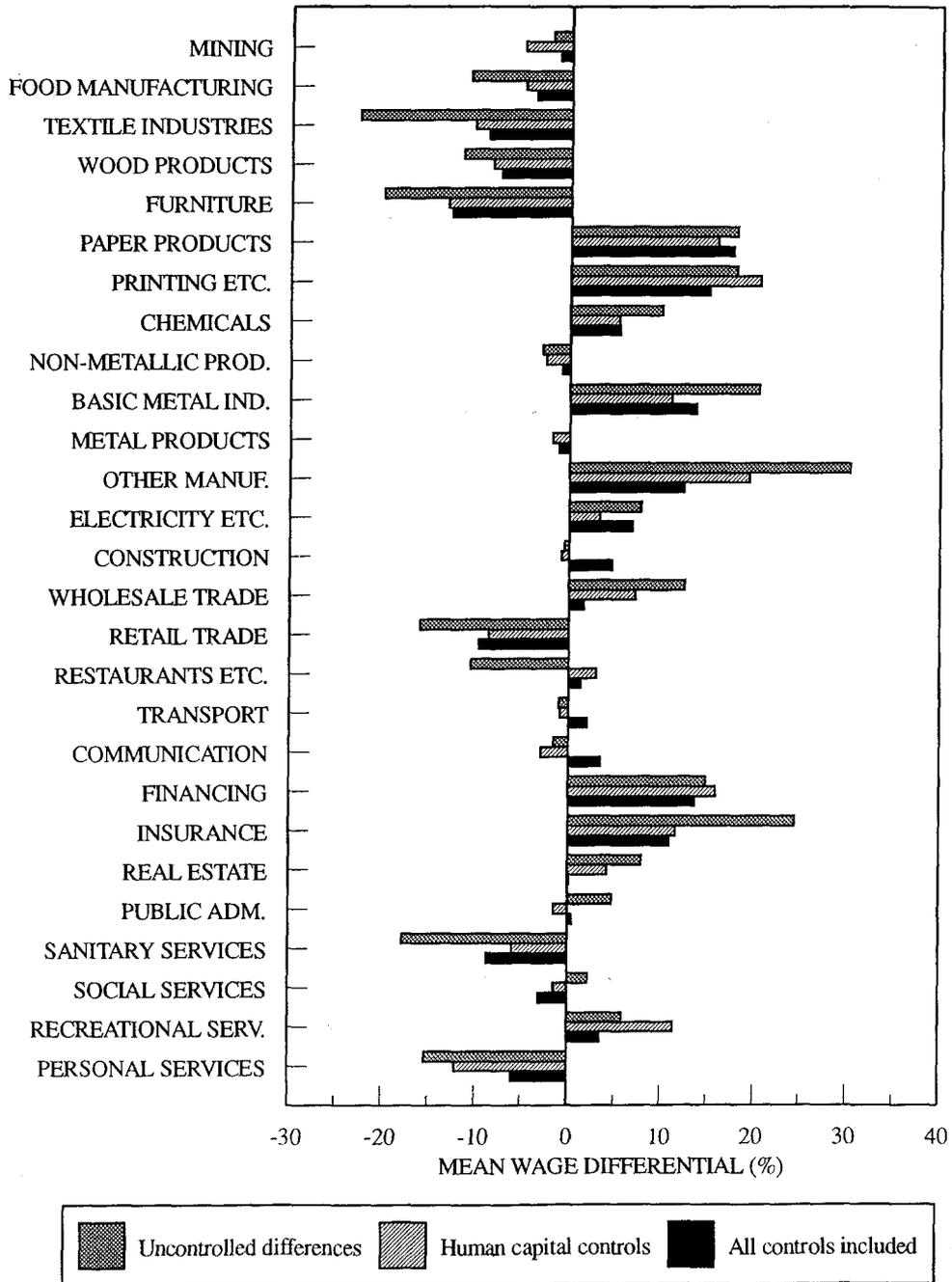
More formally, standard earnings equations are estimated in three stages. In the first stage, the dispersion of individual log hourly earnings (before tax) is explained merely in terms of a vector of primarily two-digit industry control variables in order to obtain crude measures of industry-related wage differentials. In the next two stages, attempts are made to test for competitive theories of wage determination first by adding a vector of human capital variables to the earnings equation, and second a vector comprising a broad set of other personal and job characteristics.

These earnings equations are estimated for all non-agricultural employees on the one hand, and for non-agricultural private-sector employees on the other. The data covers a total of 3748 wage and salary earners aged 16 to 64. Of these, nearly two thirds are employed in the private sector. Only results for the Finnish labour market as a whole are briefly commented on below. The corresponding results for the private sector are very similar.

The gender aspect is accounted for in two different ways: first, by estimating the earnings equations for all employees where gender appears as an explanatory variable, and second, by estimating separate earnings equations for male and female employees.

The earnings equations are estimated using ordinary least squares (OLS) techniques with standard errors adjusted for heteroscedasticity. In *Figure 1* the estimated industry coefficients are turned into employment-weighted mean differentials for all employees in non-farm jobs. Put differently, the industry wage premiums indicated by the estimated industry coefficients are normalized to measure the proportional difference in hourly earnings between an employee in a given industry and an average employee in the Finnish labour market.

**Figure 1. Estimated inter-industry wage differentials for non-farm employees.  
Employment-weighted mean wage differentials for primarily two-digit industries**



Source: Asplund (1993a)

The figure shows that the overall pattern of industry wage premiums largely remains even after controlling for a wide variety of personal and job characteristics. In particular, the rank correlation between the uncontrolled and the fully controlled industry wage structure is 0.887. Moreover, a majority of the estimated industry wage premiums remain statistically significant at conventional levels even after controlling for differences in acquired human capital and job-related characteristics of the labour force between different industries.

Another general trend is that the wage premiums measured tend to decline when more controls are added. Indeed, nearly half of the observed wage dispersion between Finnish industries is found to be attributable to differences in worker and job characteristics. Of these, differences in human capital between industries seem to be the most significant. Controlling for other personal and job characteristics clearly narrows industry wage differentials further, but to a surprisingly moderate extent.

The empirical evidence further suggests that the relative importance of industry affiliation in explaining the observed variation in hourly earnings between Finnish industries is quite small. Similar results have been obtained for the other Nordic countries [Arai (1992), Albæk et al. (1993), Barth & Zweimüller (1992), Edin & Zetterberg (1992)] as well as for Austria (Barth & Zweimüller, 1992) and the UK (Elliott et al., 1992). Results for the US, on the other hand, indicate markedly stronger explanatory power for industry affiliation than for worker and job characteristics (e.g. Krueger & Summers, 1988).

There are, however, clear high-pay and low-pay industries in the Finnish labour market even after control. As can be seen from Figure 1, the hourly earnings of an average Finnish employee in 1987 in the paper, printing and publishing and basic metal industries, finance, and insurance were more than 10 % above the hourly earnings of an average employee in the labour market as a whole. In contrast, the hourly earnings of an average employee in the textile and wood (wood products and furniture) industries, retail trade and sanitary services were roughly 10 % or more below the hourly earnings of the average Finnish employee with identical characteristics.

These overall results largely remain even when a distinction is made between male and female employees (see *Figures A1 and A2* in the Appendix). Moreover, the pattern of residual industry wage differentials shows striking similarities between genders; the rank correlation between the male and the female industry wage structure after control is 0.731.

For both genders, the paper industries and the finance and insurance sectors appear as high-pay industries even after control. The largest wage disadvantage among female employees is obtained for those in the retail trade, but among male employees for those in the manufacture of wood products and furniture and fixtures. The even larger wage disadvantage obtained for males in sanitary services is to be interpreted with caution, since it is based on very few observations. This also holds for the large wage advantage obtained for females employed in 'other manufacturing'.

Finally it may be noted that the exclusion of fringe benefits from the dependent variable, i.e. from calculated hourly earnings, does not alter considerably the size of the measured industry wage effects. The most conspicuous exception is the finance sector, for which the exclusion of fringe benefits results in a notable drop in the wage premium of the average employee, especially among females.

### 3 Industry wage differentials between the Nordic countries

The structure of industry is fairly comparable in the Nordic countries. Wage-setting procedures in Denmark, Finland, Norway and Sweden also have several distinctive features in common (Calmfors, 1990). It is therefore to be expected that inter-industry wage differentials across the four countries should show notable similarities. In fact, this hypothesis receives strong support in a forthcoming study of the industry wage structure in the Nordic countries (Albæk et al., 1993).

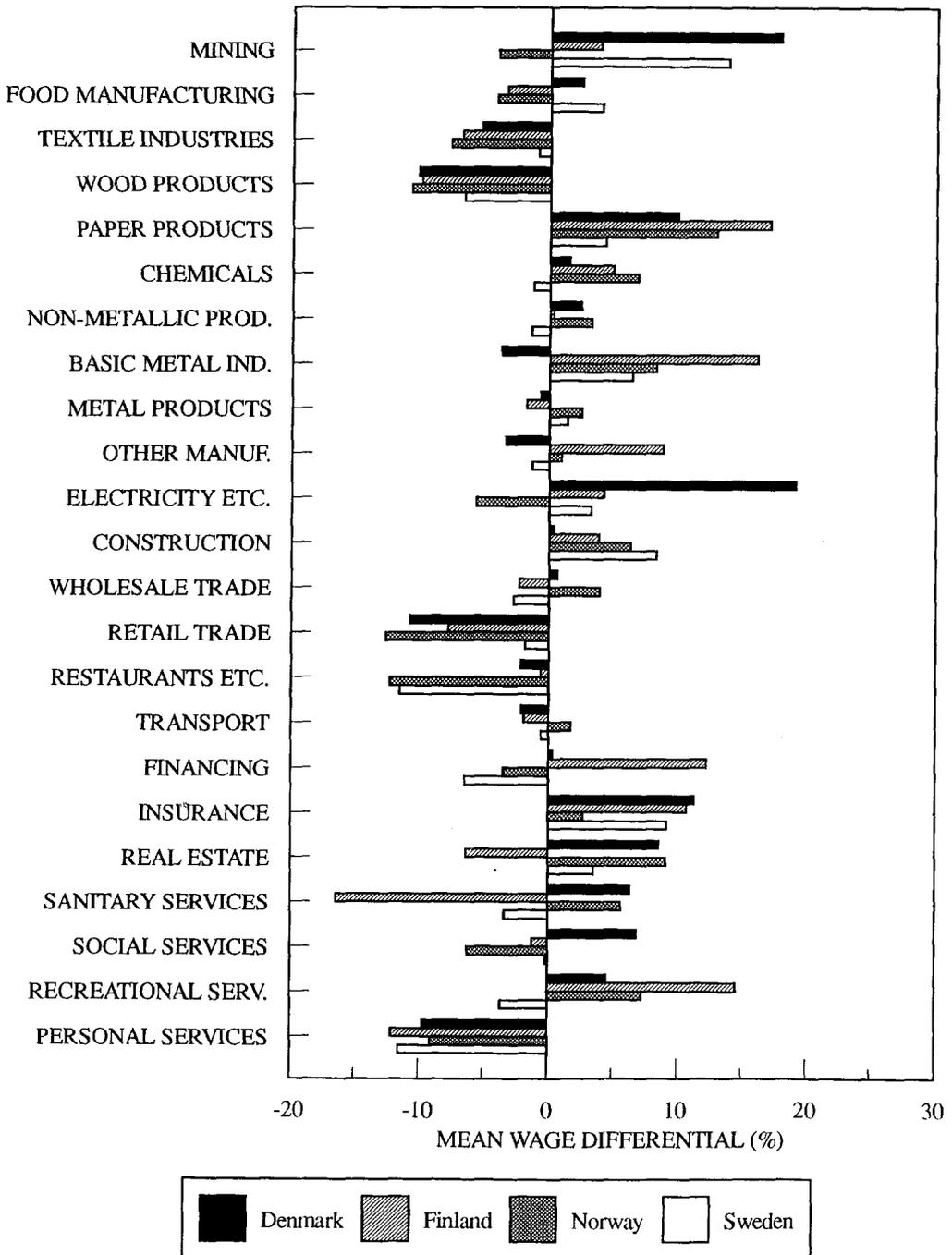
In this joint Nordic project, similar specifications of the earnings function are estimated using comparable national cross-sectional databases. The analysis focuses on the private-sector labour market with agriculture, forestry and fishing being excluded because of the special working conditions and methods of wage formation in these sectors.

The approach used to examine the industry wage structure in the four Nordic countries is identical to the one applied in the previous section. In other words, a simple earnings model comprising industry indicator variables only is constructed in stages with variables controlling for differences in observable personal and job characteristics across industries. In the last stage, a slightly different set of covariates is included for each country, as some of the variables were available in some countries and not in others.

*Figure 2* gives the results obtained from this "fully controlled" stage only. It may be noted, though, that the industry wage premiums estimated from this extended model are of about the same magnitude as those obtained when just controlling for differences in human capital and gender between industries. The wage premiums displayed in the figure again show the percentage wage deviation for the average employee in each industry as compared to the wage level of the average employee in the sample.

As can be seen from *Figure 2*, the industry wage structure is fairly similar in the Nordic countries even after controlling for differences in personal and job characteristics; high-pay industries in one country are generally high-pay industries in the other three countries as well. The same largely holds for low-pay industries, too. The highest wage premiums are paid in paper, insurance, real estate and recreational services, while the lowest wage premiums are paid in textiles, wood, retail, restaurants, sanitary services and personal services.

**Figure 2. Estimated inter-industry wage differentials in four Nordic countries using a wide set of control variables. Employment-weighted mean wage differentials for two-digit private-sector industries**



Source: Albæk et al. (1993)

The remarkable similarity of the industry wage structure across the four Nordic countries is further highlighted in *Table 1*, which shows the correlations of the industry wage premiums estimated in the three specifications of the earnings model.

Table 1. Correlations of estimated industry wage premiums between the Nordic countries

		Denmark	Finland	Norway	Sweden
Model (1): industry indicator variables only	Denmark	1	.53*	.56*	.83*
	Finland		1	.78*	.55*
	Norway			1	.65*
	Sweden				1
Model (1) extended with human capital and gender	Denmark	1	.43*	.45*	.64*
	Finland		1	.53*	.34
	Norway			1	.41
	Sweden				1
"Fully controlled" model	Denmark	1	.34	.36	.61*
	Finland		1	.47*	.39
	Norway			1	.43*
	Sweden				1

\* indicates that the figure is significant at a 5 % level.

Source: Albæk et al. (1993)

As can be seen from the table, the correlations are extremely high in the "uncontrolled" model. The correlations drop slightly when controlling for differences in human capital and gender between industries and countries. Nevertheless, the overall pattern is maintained. The correlations calculated for the fully controlled model differ only marginally from those calculated for the earnings model controlling for human capital and gender, even though the models for each country do not include an identical set of explanatory variables.

#### 4 The development of relative wages in Finnish industry in 1980-92

The evidence on wage differentials between Finnish industries presented so far concerns a single year only. Moreover, 1987 represents a period of high economic activity and relatively low unemployment. Since then gross output has fallen substantially, while the unemployment rate has risen dramatically. At the same time earnings growth has also slowed markedly.

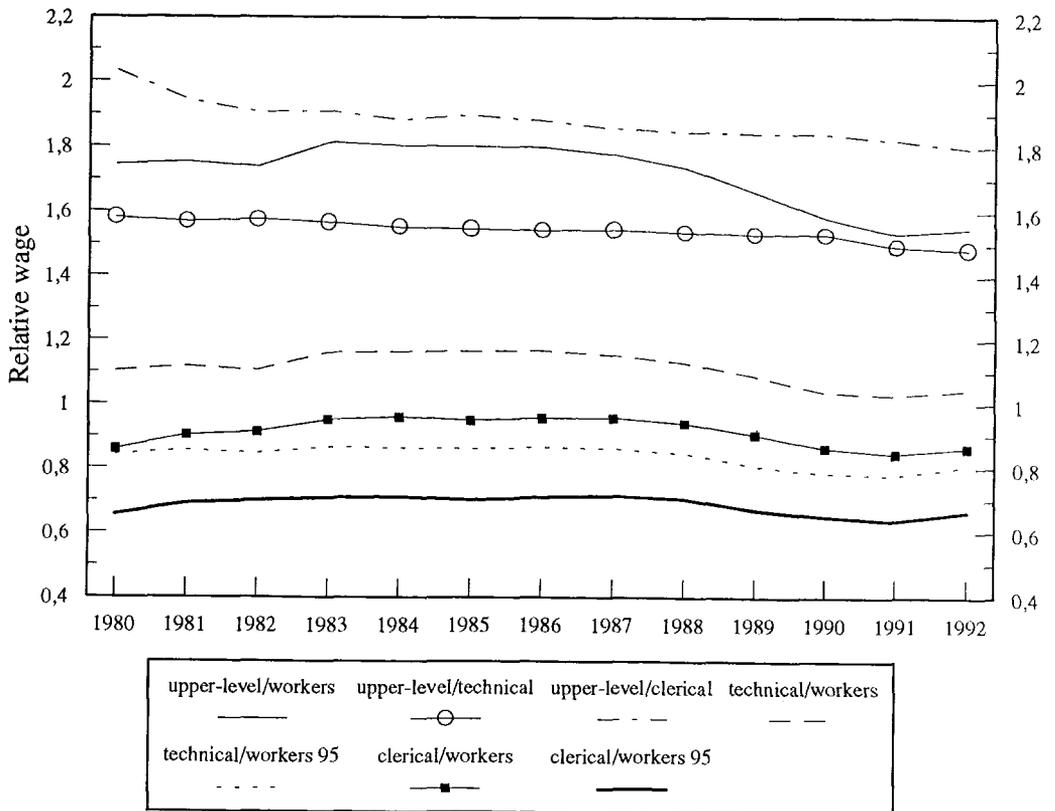
Have these radical changes in the economic situation in Finland affected relative wages between and within crucial worker categories? In the following, this question is addressed by examining the development of relative wages in Finnish private-sector

industry over the period 1980-92. A more detailed analysis of the results presented below can be found in Asplund (1993b).

The earnings data used was gathered by the Confederation of Finnish Industry and Employers (TT). This means that the data mainly comprises non-manual and manual workers in the manufacturing sector. But obviously this is also the sector which has been most strongly affected by the dramatic changes that the Finnish economy has undergone during the past few years.

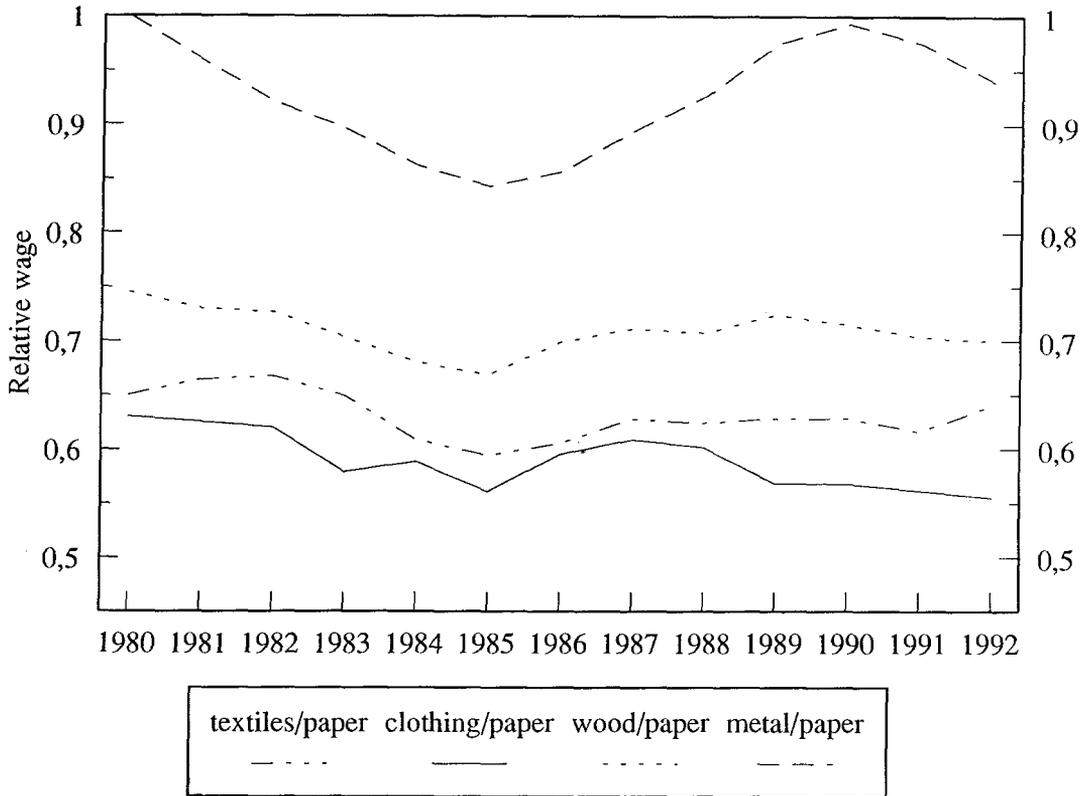
*Figures 3 and 4* highlight the development of the relative wages of selected categories of non-manual and manual workers in private-sector industry over the period 1980-92. The earnings concept used refers to average hourly earnings inclusive of various compensations, such as overtime pay and fringe benefits.

**Figure 3. Trends in relative wages of selected non-manual and manual industry worker categories over the period 1980-92**



Source: Asplund (1993b)

**Figure 4. Trends in hourly earnings of manual workers in manufacture of textile, clothing, wood and metal products relative to hourly earnings of manual workers in manufacture of paper products**



Source: Asplund (1993b)

The overall impression conveyed by the two figures is that at least up to 1992 there were only marginal shifts in relative wages between the different employee categories under study. Nevertheless, there seems to have been a slight weakening of the earnings position of upper-level non-manual industry workers relative to non-manual workers in technical and clerical jobs (upper-level/technical and upper-level/clerical in Figure 3).

Figure 3 also indicates that towards the end of the investigated time period the earnings position of manual workers strengthened slightly relative to all three categories of non-manual industry workers under study. This holds for all workers as well as for workers in the 95th percentile (workers 95 in the figure). On the whole, the earnings level of technical and clerical non-manual industry workers stands out as

fairly weak compared with the average earnings level of manual workers and, especially, of high-wage manual workers.

Figure 4, in turn, shows the development of the relative wages of five manual industry worker categories. The reference category is manual workers in the paper industry, a sector which has already been noted as representing a high-pay industry. There has clearly been some variation in relative wages across the five industry sectors examined, but most of the changes can evidently be attributed to the samples used. However, a noteworthy development is the improved earnings position of textile workers at the end of the investigated time period.

The textile industry also stands out as an exception when examining the development of wage dispersion within the three non-manual and the five manual industry worker categories. It turns out that the textile manual worker category is the only one of the investigated employee categories for which increasing wage differentials can be observed during the past few years. This becomes evident in *Figure 5*, which displays the earnings level (the upper limit) of different percentiles relative to the earnings level of the median.

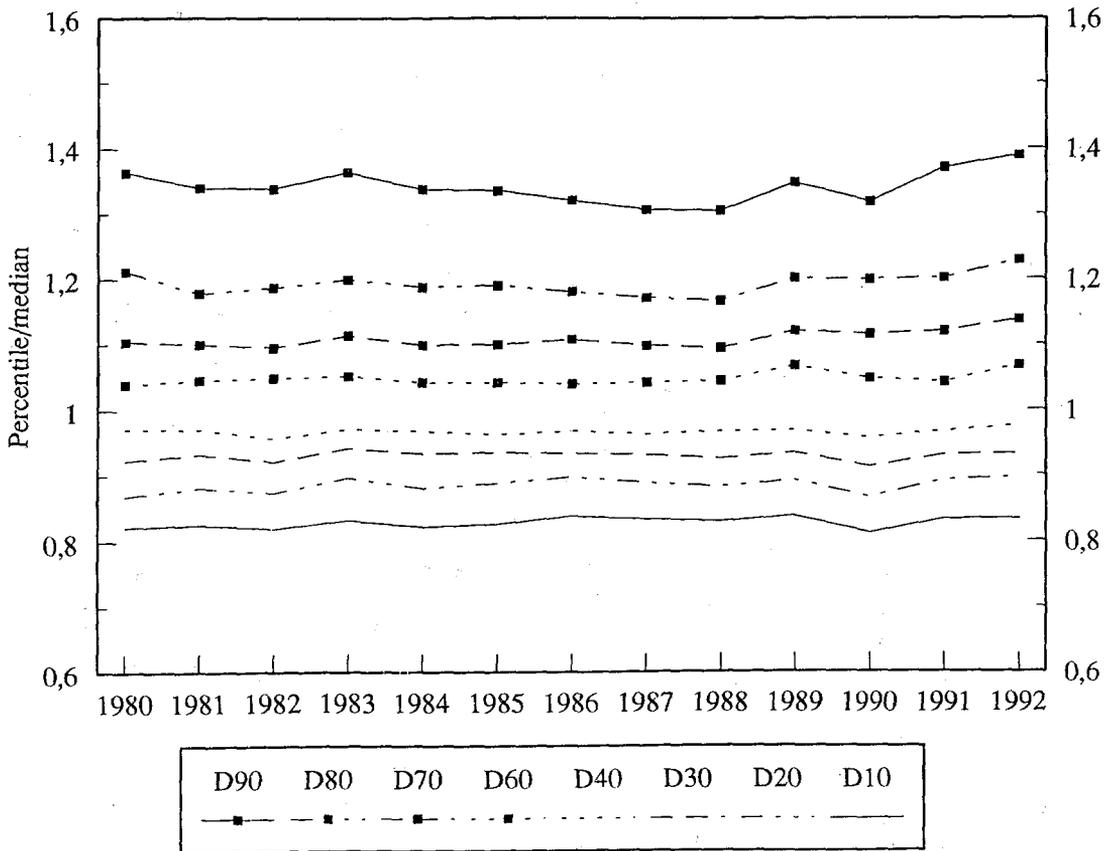
In all the other employee categories under study, wage dispersion measured in this way has remained roughly unchanged over the past 13 years. This is shown in *Figures A3-A9* in the Appendix.

The textile industry is also interesting when it comes to the estimated effects on earnings of acquired human capital. Estimation results reported in Asplund (1993c) suggest that of the non-manual and manual worker categories investigated, manual workers in the textile industry represent the only category that has experienced increasing rates of return on human capital in the 1980s. In the manufacture of clothing, wood, paper and metal products, manual workers have faced either stable or declining returns on their acquired human capital.

An even stronger trend of decreasing rates of return on human capital is observed for the three categories of non-manual industry workers under study. Thus estimation results reported in Asplund (1993d) indicate that the return on formal education has dropped quite significantly during the 1980s, more for upper-level non-manual workers than for non-manual workers in technical and clerical jobs.

The results also point to a marked weakening of the earnings effects of work experience and seniority among non-manual industry workers during the past decade. Indeed, the empirical evidence presented in Asplund (1993d) indicates that by 1990 the earnings effects of seniority, i.e. of the length of the current employment relationship, had disappeared in all three categories of non-manual industry workers under study.

Figure 5. Relative earnings of manual workers in textile industries 1980-92



Source: Asplund (1993b)

All in all, therefore, with the exception of manual workers in the textile industry, acquired human capital seems to explain a declining share of the observed earnings variance within the various employee categories investigated. At the same time, the growing importance of the competence of the workforce in enhancing competitiveness and growth is increasingly emphasized in the general debate as well as in research work. Has human capital in the form of education, training, age, experience and seniority lost its previously central role in explaining earnings differentials? Or is it the case that the human capital embodied in the workforce is still reflected in earnings dispersion but that the traditionally used measures of human capital are no longer capable of capturing these effects?

## 5 Concluding remarks

This paper has focussed on inter-industry wage differentials in Finland and, especially, on the role of human capital in explaining these differentials. Selected results have also been presented in respect of the development of relative wages between and within crucial industry worker categories over the period 1980-92.

Existing evidence indicates that substantial industry-related wage differentials remain in Finland even after controlling for a broad set of personal and job characteristics. More exactly, the overall pattern of inter-industry wage premiums largely remains after control; the rank correlation between uncontrolled and controlled industry wage premiums is 0.739 for female employees and 0.736 for male employees.

In other words, uncontrolled industry wage differentials provide a relatively good prediction of the pattern of industry wage premiums that emerges after controlling for a wide variety of relevant individual and job characteristics. In particular, industries paying above-average/below-average wages generally remain high-pay/low-pay industries even after control. These patterns change only marginally when fringe benefits are excluded from the analysis.

The results also suggest that worker and job characteristics explain relatively more of the observed industry wage structure than the individuals' industry affiliation does. Indeed, nearly half of the observed wage dispersion across Finnish industries can be attributed to differences in human capital in the labour force between the different industries. This holds for both genders.

The Finnish results imply that the overall variability in industry wages is somewhat higher in Finland than in the other Nordic countries, but still clearly lower than in the US. In fact, the industry wage structure turns out to be very similar in Denmark, Finland, Norway and Sweden, even after controlling for differences in the personal and job characteristics of the labour force across industries and countries. Hence, it can be argued that the industry wage structure in the Nordic countries bears more resemblance to the competitive model of the labour market than the US industry wage structure does.

A more detailed examination of the development of relative wages between and within three categories of non-manual industry workers and five categories of manual industry workers indicates that there have been only marginal shifts in relative wages over the years 1980-92. This is quite a surprising outcome in view of the dramatic changes that the Finnish economy has undergone during the past few years.

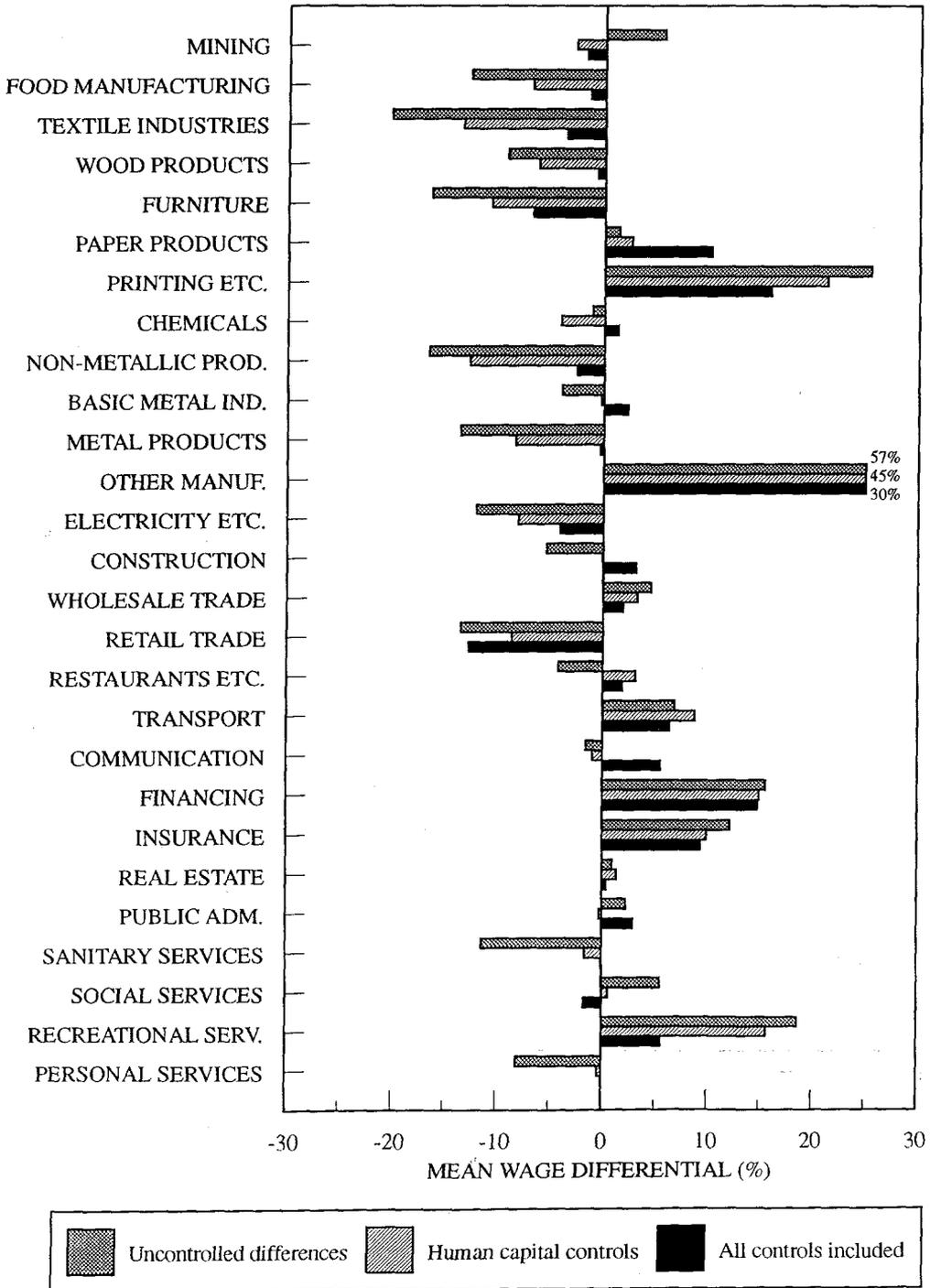
This finding may be taken as an indication of the relatively strong influence on wage-setting procedures exercised in Finland by the highly centralized bargaining institutions in conjunction with a high unionization rate. At least in the OECD *Employment Outlook for 1993* it is hypothesized that "those countries which did not experience an increase in dispersion over the 1980s, Denmark, Finland, Germany, Italy and Norway, are countries where national institutions have a particularly strong

influence on wage setting and may have masked the effects of demographic and economic forces" (p. 166).

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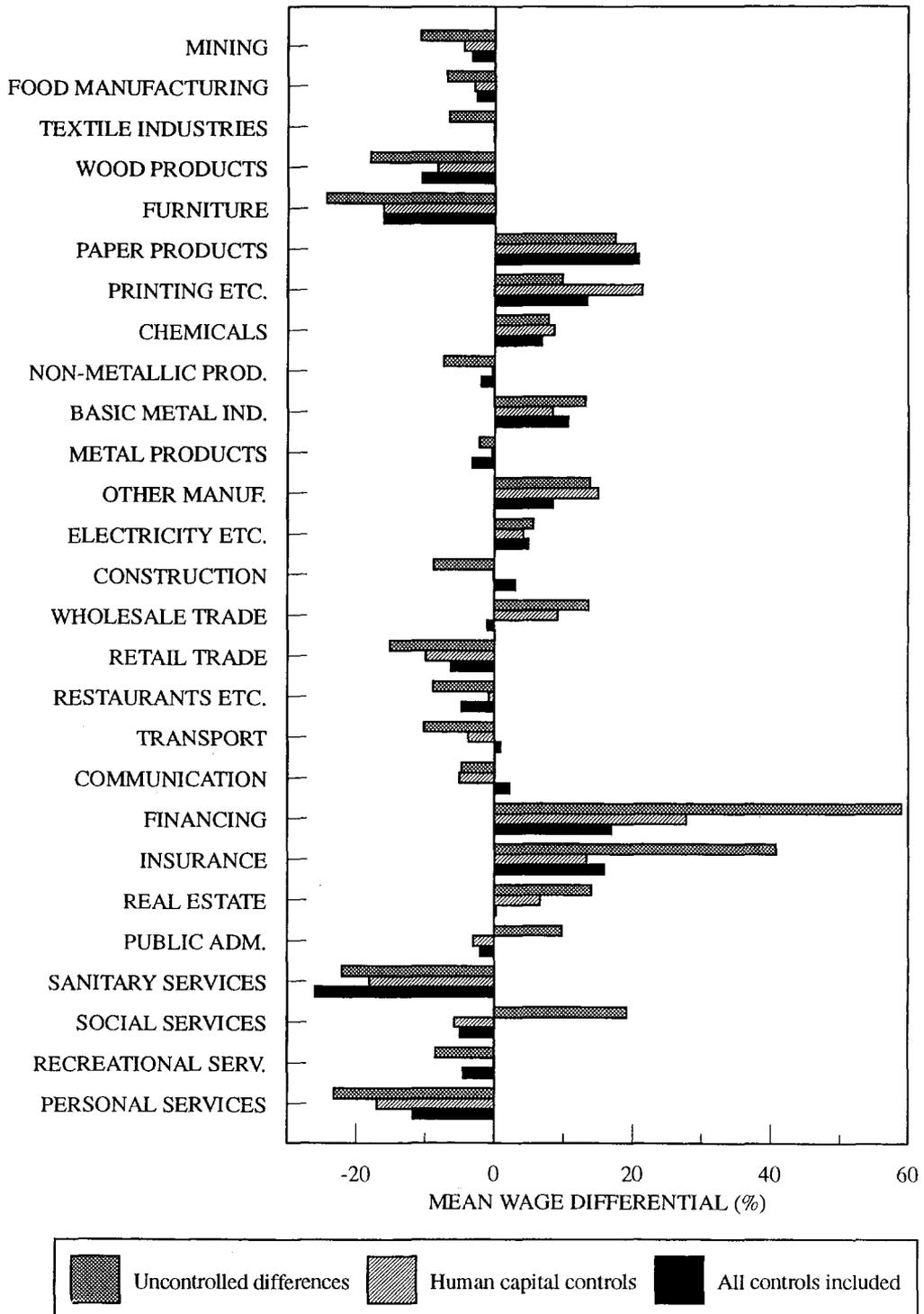
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**Figure A1. Estimated inter-industry wage differentials for female non-farm employees. Employment-weighted mean wage differentials for primarily two-digit industries**



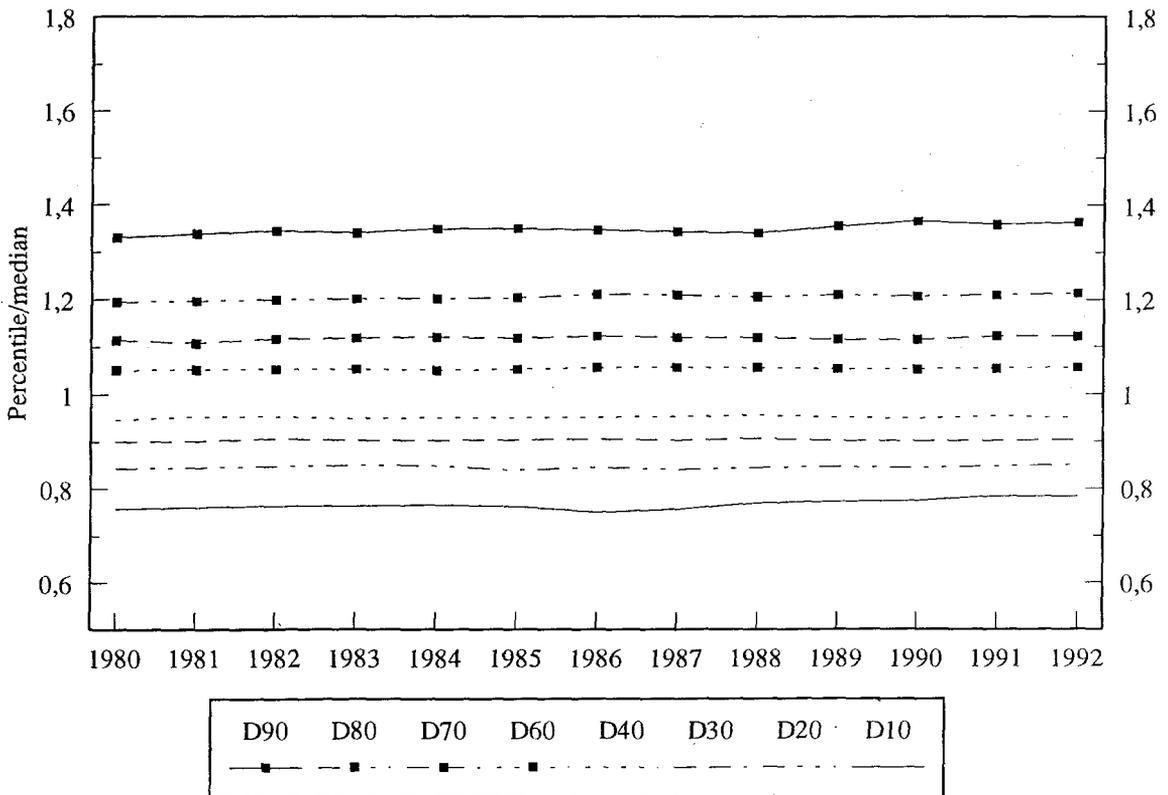
Source: Asplund (1993a)

**Figure A2. Estimated inter-industry wage differentials for male non-farm employees. Employment-weighted mean wage differentials for primarily two-digit industries**



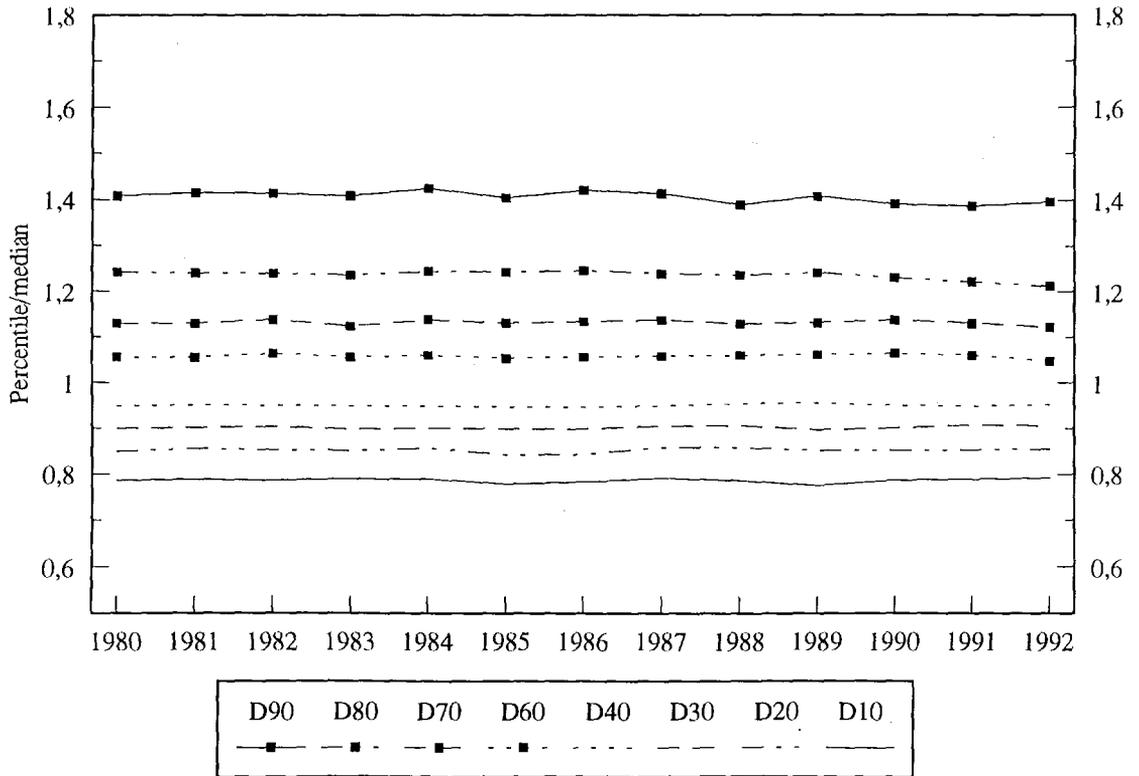
Source: Asplund (1993a)

Figure A3. Relative earnings of technical non-manual industry workers 1980-92



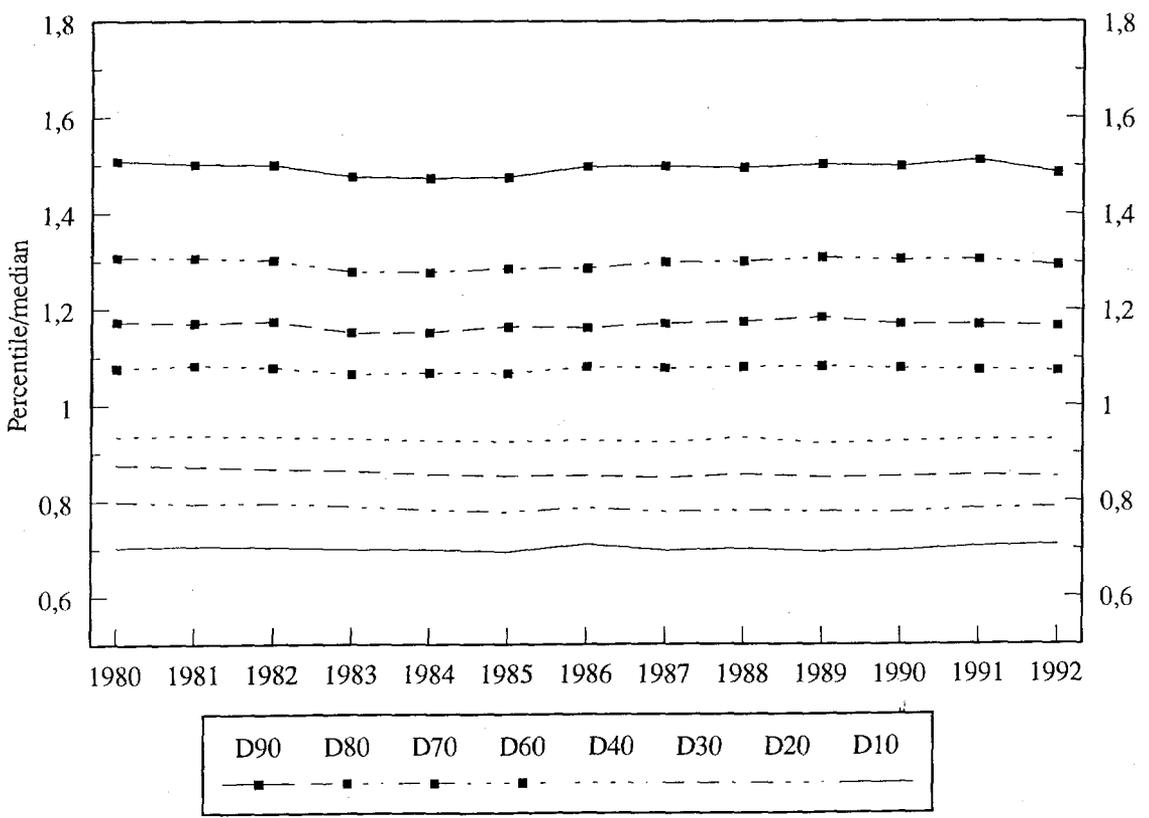
Source: Asplund (1993b)

Figure A4. Relative earnings of clerical non-manual industry workers 1980-92



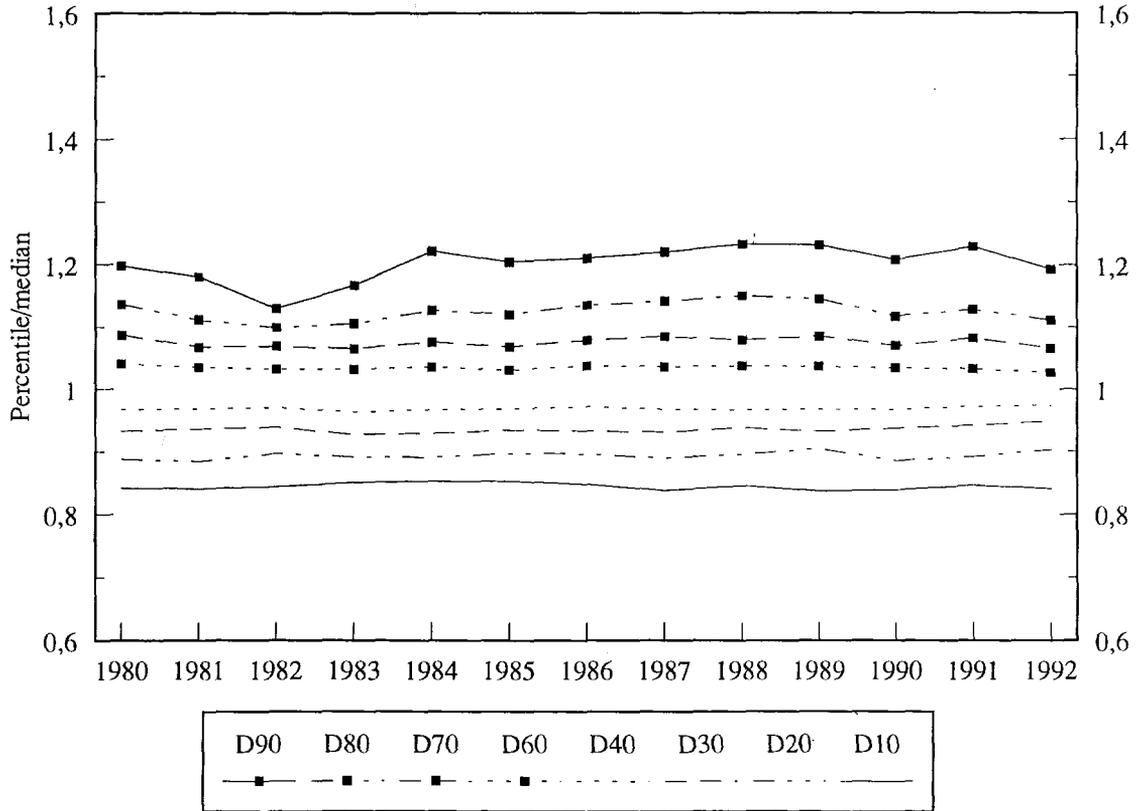
Source: Asplund (1993b).

Figure A5. Relative earnings of upper-level non-manual industry workers 1980-92



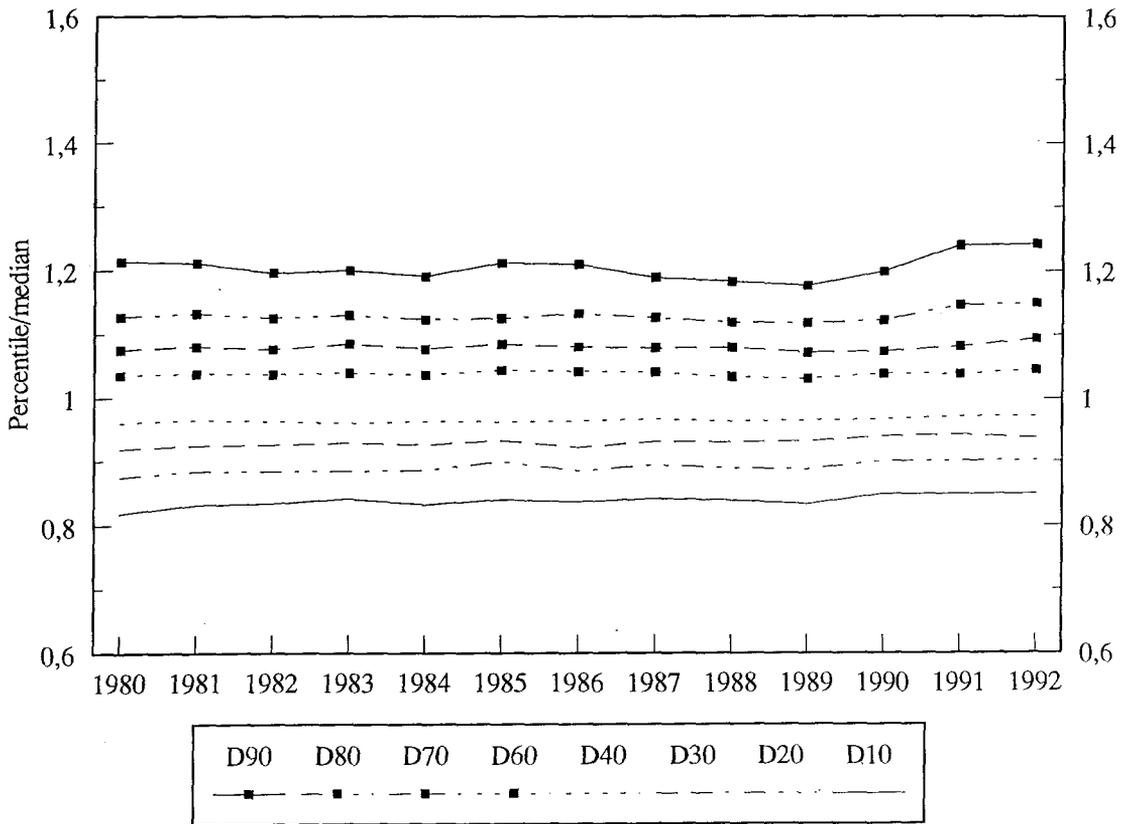
Source: Asplund (1993b)

Figure A6. Relative earnings of manual workers in manuf. of clothing 1980-92



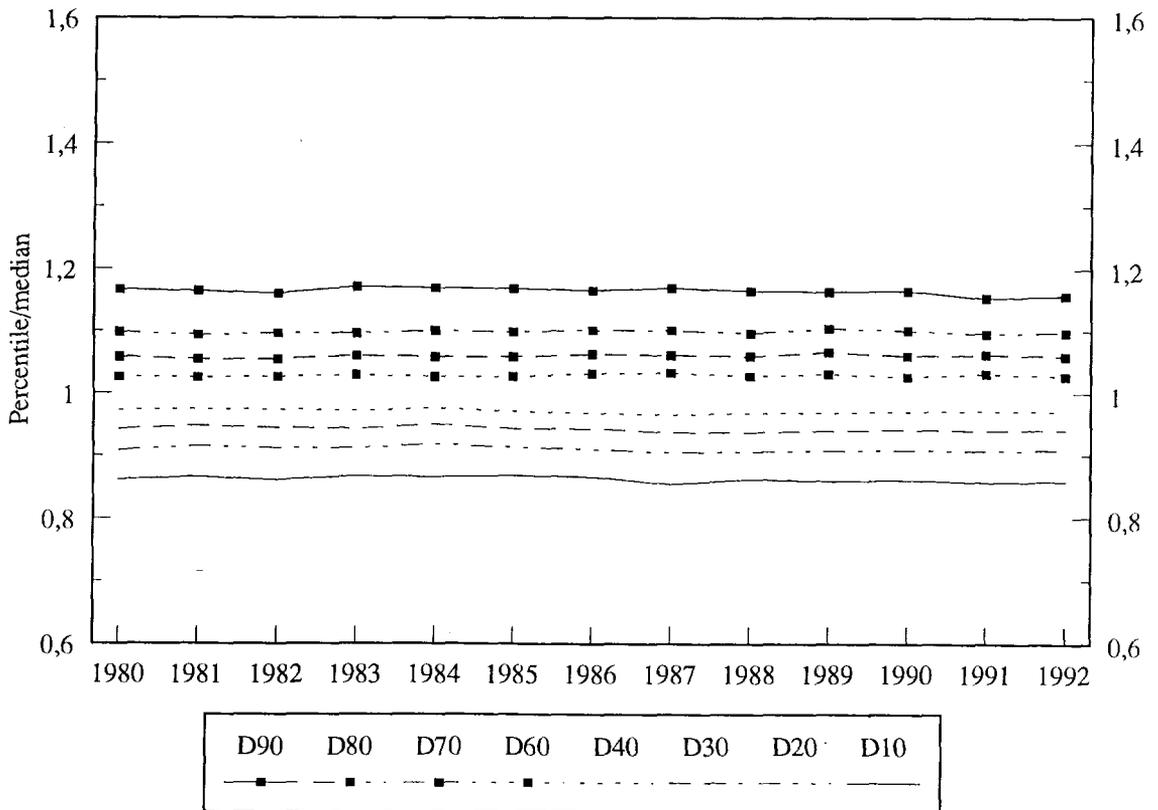
Source: Asplund (1993b)

Figure A7. Relative earnings of manual workers in manuf. of wood 1980-92



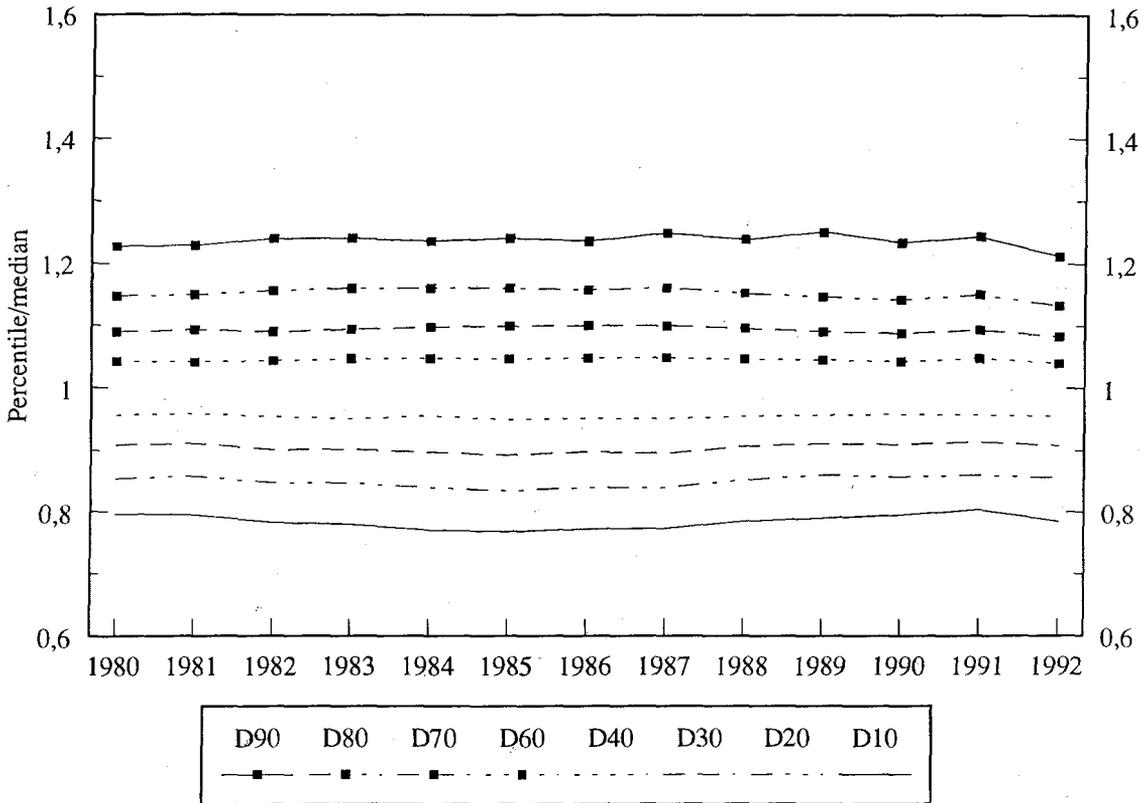
Source: Asplund (1993b)

Figure A8. Relative earnings of manual workers in paper industries 1980-92



Source: Asplund (1993b)

Figure A9. Relative earnings of manual workers in metal industries 1980-92



Source: Asplund (1993b)

## COMMENT

by Jari Vainiomäki, University of Tampere

Rita Asplund's study looks into inter-industry wage differentials in Finland based on several studies performed by her. I believe these are an important set of papers covering many issues and features of industry wage structures. They lay the ground for future research into industry wage premiums, which seem to exist even after allowing for human capital and other personal and job-specific characteristics. These papers, together with some other Finnish studies, establish that such industry wage differences exist, and in future research we will need to find the causes of these differences.

From studies performed for other countries at least four features seem to stand out about industry wage differentials: (i) they cannot be explained away by differences between industries in human capital and working conditions, (ii) different countries seem to have fairly similar industry wage structures, so that they cannot be caused only by country-specific labour market institutions or production structures, (iii) industry wage differentials seem to be persistent over long periods of time, so that they are not simply price signals for the required labour mobility to attain a supply and demand equilibrium, and (iv) industry wage premiums are similar for different occupation groups, which runs against any explanation of compensating differentials.

Most of Asplund's material relates to the first two issues, and confirms similar findings for Finland. In this connection, I would like to draw attention to one interesting observation. In comparing the Nordic countries Albæk et al. (1993) report the following weighted and adjusted standard deviations.

Table 1. The effect of human capital and other controls on wage differentials in the Nordic countries

Model	Denmark		Finland		Norway		Sweden	
	WASD	Change	WASD	Change	WASD	Change	WASD	Change
(1)	.094	27 %	.121	20 %	.150	45 %	.084	51 %
(2)	.069	17 %	.097	26 %	.083	7 %	0.41	24 %
(3)	.057		.072		.077		.031	

Note: model (1) includes no controls, model (2) includes human capital controls (education and experience) and gender, and model (3) includes all available controls, including occupation and job characteristics, but the set varies between countries.

Source: Albæk et.al. (1993)

Looking at the drop in the weighted and adjusted standard deviation in percentage terms when human capital variables and gender are included as controls (model (2) compared to (1)), the effect is smallest in Finland and is less than half that in Norway and Sweden. And when all the other available controls are included the effect is greatest in Finland. This latter comparison is not as revealing as the first, because the controls included in model (3) are somewhat different, but the much weaker explanatory power of education and experience in Finland is surprising. Alternatively, the reason may also be that Norway and Sweden are different from most other countries in this regard.

Table 2. Changes in industry wage differences over time

Industry Year	Employers' Confederation	Labour Force Survey	Population Census
Textile		(32)	(321)
75			-.25 (-.07)
80	-.29		-.24 (-.09)
85	-.27	-.25 (-.08)	-.23 (-.09)
90	-.32		
Clothing			(322)
75			-.33 (-.10)
80	-.32		-.28 (-.09)
85	-.31		-.30 (-.09)
90	-.38		
Wood		(331)	(33)
75			-.13 (-.09)
80	-.19		-.09 (-.03)
85	-.18	-0.11 (-.08)	-.12 (-.07)
90	-.22		
Paper		(341)	(341)
75			.14 (.14)
80	.08		.18 (.18)
85	.23	.17 (.16)	.20 (.20)
90	.09		
Metal		(38)	(38)
75			.08 (-.01)
80	.08		.07 (.02)
85	.04	.01 (-.02)	.03 (-.01)
90	.08		

Notes: (i) Raw wage differentials (and estimated wage differentials from a regression with controls in parenthesis). The numbers are percentage deviations from an average of all private sector workers, except column (1), which gives deviations from the average for manual workers in the five industries in the table. The second column is for 1987. In columns (2) and (3) the industry codes are given in parenthesis.

Sources: Column (1): Asplund (1993a)  
 Column (2): Asplund (1993b)  
 Column (3): Vainiomäki and Laaksonen (1992)

Asplund's papers contain much less information about observations (iii) and (iv). The lack of a time dimension is of course inevitable when using cross-sectional data from the labour force survey. On the other hand the panel data from the Confederation of Employers' database only covers five industries, and only includes uncontrolled industry wage differentials. Let me therefore try to characterize the persistence of industry wage differentials by combining information from these two papers and from Vainiomäki and Laaksonen (1992).

Although the numbers in different studies are not totally comparable, I use them to approximate the development of industry wage differentials over the period 1975-1990. More specifically, Table 2 indicates that:

- 1) The wage differences in columns (2) and (3) are very similar despite some differences between the studies in the data sources and control variables used. Given this similarity of wage premiums in the mid-80's it seems likely that column (3) tracks the development over time well enough up to 1985. Note also that the control variables have a substantial effect on the wage differentials in some industries (such as textiles and clothing, probably because the proportion of labour is large), but a negligible effect in some other industries (such as paper). In comparing columns (1) and (3) this needs to be borne in mind.
- 2) Columns (1) and (3) indicate that wage differentials are fairly persistent over the time periods studied. However, column (1) gives the impression that there are larger changes in some industries, like paper, than column (3). The reason for the dramatic changes in wage differentials for paper in column (1) is the different pattern of wage growth between paper and other industries in the sample, especially the metal industry, which dominates the sample (see Table 3). However, when comparing paper to all other industries, as in column (3), wage growth does not appear to have been so different. Moreover, taking the period 1980-92 as a whole, the differences in wage growth between industries are rather small (all industries are in the range of 7.5 to 8.3 % p.a. according to numbers by Asplund (1993a); see Table 3).

Table 3. Wage growth for white and blue collar workers and their sub-groups, total hourly earnings

Group	Period			
	80-85	85-90	90-92	80-92
White collar	10.4	7.5	3.8	8.1
- Upper-level	9.2	6.7	2.5	7.0
- Technical	9.7	6.9	4.0	7.6
- Clerical	10.8	7.3	3.6	8.2
Blue collar	8.5	9.5	3.6	8.1
- Textile	9.3	8.0	5.6	8.2
- Clothing	9.5	7.1	3.6	7.5
- Wood	8.9	8.3	3.6	7.7
- Paper	11.2	6.8	4.8	8.3
- Metal	7.5	10.4	2.0	7.8

Source: Asplund (1993a), tables 1, A1 and A2.

The overall conclusion to draw seems to be that in the long run there is a fairly rigid wage structure, i.e. a tendency to revert back to existing wage differentials, although there may be large differences in the wage growth of some industries over shorter time periods. This conclusion is confirmed by the correlations of wage differentials between different years reported in Table 4, taken from Vainiomäki and Laaksonen (1992).

Table 4. Correlations of industry wage differentials for different years, 1975-85

Year and model	Correlation with		
	1975 cross-section	1980 cross-section	1985 cross-section
Cross-section, no controls, same year	.76	.80	.80
	.77	.78	.83
Cross-section 1980	.83		.93
	.84		.92
1985	.86	.93	
	.87	.92	
Fixed-effects 1975-80	.58	.49	
	.54	.47	
1980-85		.72	.70
		.69	.64

Note: The upper set of numbers are ordinary correlations and the lower set rank correlations. The controls included are education, occupation, age, gender, marital status and its interaction with gender, and two regional dummies.

Source: Vainiomäki and Laaksonen (1992)

Finally, the similarity of industry wage differentials in different occupation groups (observation (iv)) cannot be evaluated, because no estimations of them have been performed for Finland. Asplund compares the wage growth and wage levels of three white collar groups (see Table 3), but does not analyse industry wage differentials for them. It would be interesting to see some numbers for industry wage differentials in white collar groups and try to compare them to blue collar differentials, if the data source allowed this.

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## **RISING UNEMPLOYMENT - A GENERAL FEATURE OF WESTERN EUROPE?**

**by Antti Romppanen, Government Institute for Economic Research**

### **Definition of the problem**

High unemployment and a slow job creation rate have long been matters of concern to governments and citizens in Europe. Is rising unemployment the inherent result of technological development, does it result from changes in the global division of labour or does it merely reflect the depressed state of economic activity? All these factors may have contributed but the evidence is far from convincing.

The slow growth of labour productivity does not support the technological explanation (OECD, 1993). The effect of changes in global trade flows on employment in western countries has been found to be rather small (Sakurai, 1993). Slow economic growth seems to be the most likely explanation. A rule of thumb in European countries is that an annual economic growth rate of about 2.5 - 3 % is needed to generate increased employment (eg. Coe & Moghadam, 1993). Only a few European countries have reached this growth rate during the last 20 years.

However, the slow growth explanation is insufficient to explain why the connection between production and employment growth varies between countries. Growth in GDP in 1970-90 was about the same in North America and EC countries. In the same period the number of jobs in North America grew by about 50 % while in the EC the increase was under 10 %. The employment-production ratio also varies markedly between western European countries. Why has the same rate of economic growth created a lot of new jobs in some western European countries but in other countries destroyed them? (Figure 1)

### **Aim of the study**

The aim of this research is to try to explain differences in the "job elasticities of national growth patterns" among western European countries. The results of previous research into differences in employment and productivity growth will be utilized. Changes in employment have traditionally been explained by changes in production, the structure of demand, in the relative prices of production factors and by developments in productivity. Productivity development has in part been explained by catch-up-potential, the investment rate and the structure of investment and human capital accumulation. Although these models explain some of the inter-country differences in employment or productivity development, much has been left unexplained.

We are interested in changes in "job elasticity" over long periods and in the differences in this elasticity between countries. The approach is thus based on a panel

of cross-sectional, country-specific data. The dependent variable is the relation of changes in employment to changes in production in periods where this relationship has been rather stable (eg. 1970-73, 1982-86 etc) in 16 western European countries. The length and the number of periods may differ from country to country. The number of observations will depend on the periods selected.

The factors explaining the variance in this relationship are assumed to be found in some structural features of the economies. These will be identified for the same periods for which the "stable elasticity" can be found. These are assumed to describe differences in the following aspects:

1. Specialization in labour-intensive exports and the basis for this. This kind of export specialization has not only happened in the low-wage countries of southern Europe but also in high-income countries like Denmark or Switzerland. On the other hand labour-abundant Ireland has rapidly moved from labour-intensive exports towards R&D-intensive products.
2. The structure of demand. The relationship between public and private consumption or between the consumption of goods and services can explain differences in job creation. Services are labour-intensive. This may explain the differences in employment growth between the Nordic countries and continental Europe.
3. Job sharing. The ability to reduce working hours and the ways in which this has been done may determine the extent to which shortened hours have been compensated by hiring more people. In particular, changes in the proportion of part-time working have direct influence on the number of jobs. An increase in part-time jobs seems to be behind the rapid growth of employment in the Netherlands in the eighties.
4. Labour-market practices. The level of minimum wages and labour taxes, wage dispersion or compression and labour market policy measures may explain the different effects on employment of a growth in production. They may rise or lower the hiring threshold of employers.
5. Other factors. Labour supply and its components (young people, women, foreigners) as well as the structure of unemployment, especially the proportion of long-term unemployed, may be other factors explaining employment performance. These are assumed to describe the employability of labour reserves. The extent of self-employment and the role of SME's are also assumed to affect job creation.

In many countries the shift from one stable employment-production relationship to another seems to be associated with negative production shocks. In some countries job creation has strengthened but in others weakened, e.g. after the oil shocks of the mid-seventies and early eighties.

The various explanations can first be sought by comparing some country pairs. For example low-income, high-growth countries such as Ireland and Portugal differ markedly in their job creation (Figure 2). Among the richer countries Britain and

Sweden in the seventies and Finland and the Netherlands in the eighties and early nineties had similar growth rates but quite different employment performance.

The most important aim of the research is to evaluate what kind of "structural measures" might support job creation when production growth revives in Finland in the near future.

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Figure 1. Changes in Employment and GDP in 1970-81 and 1981-92

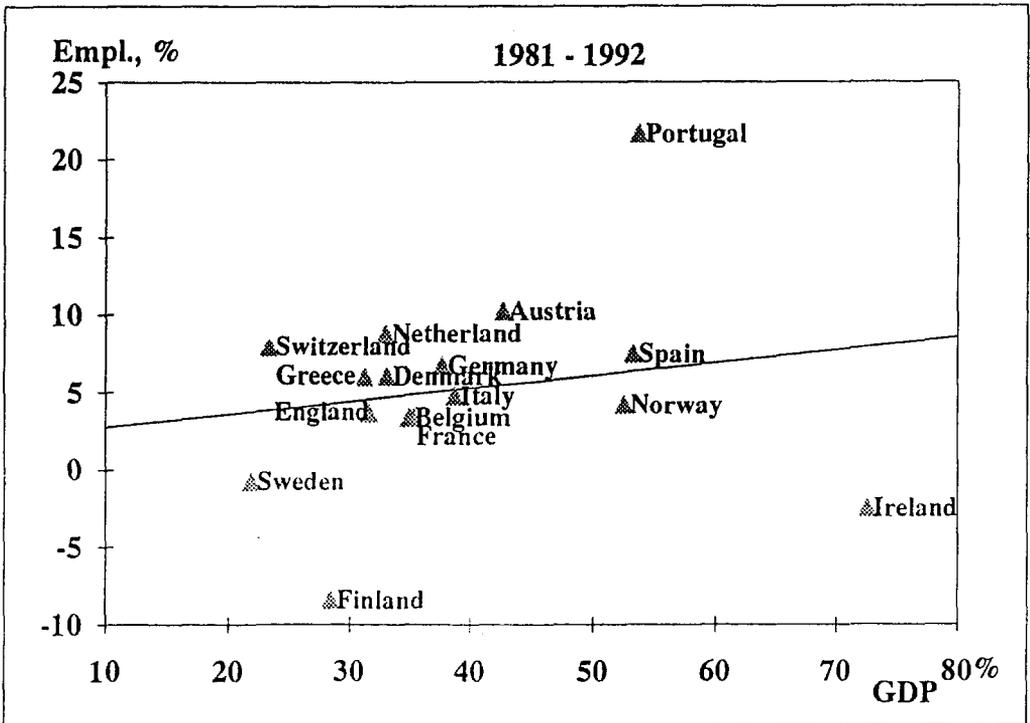
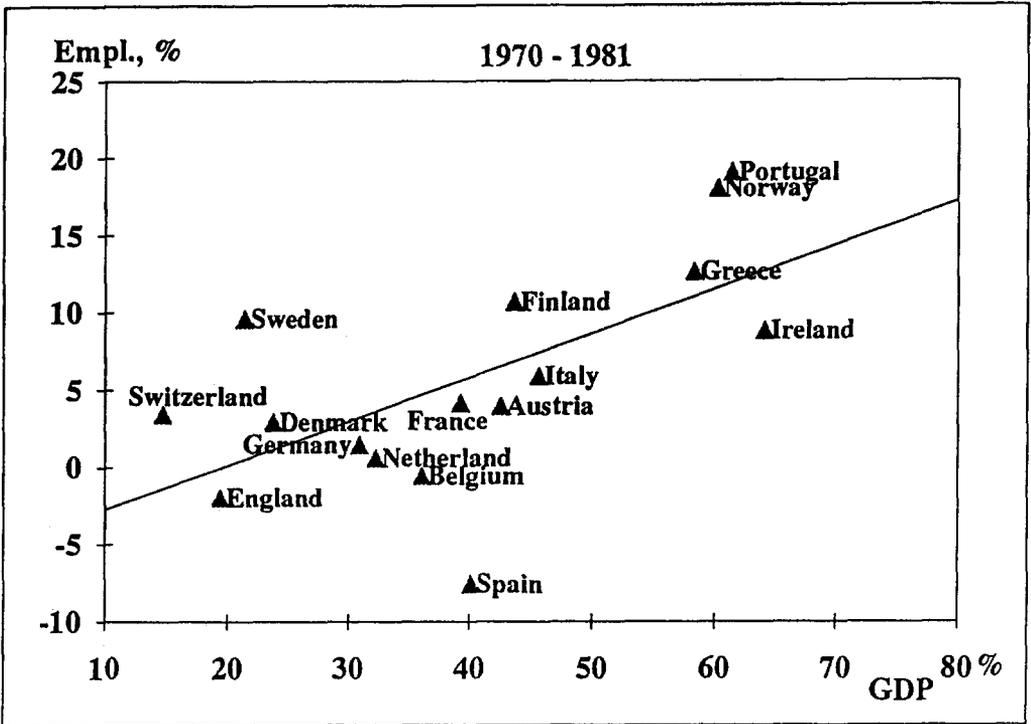
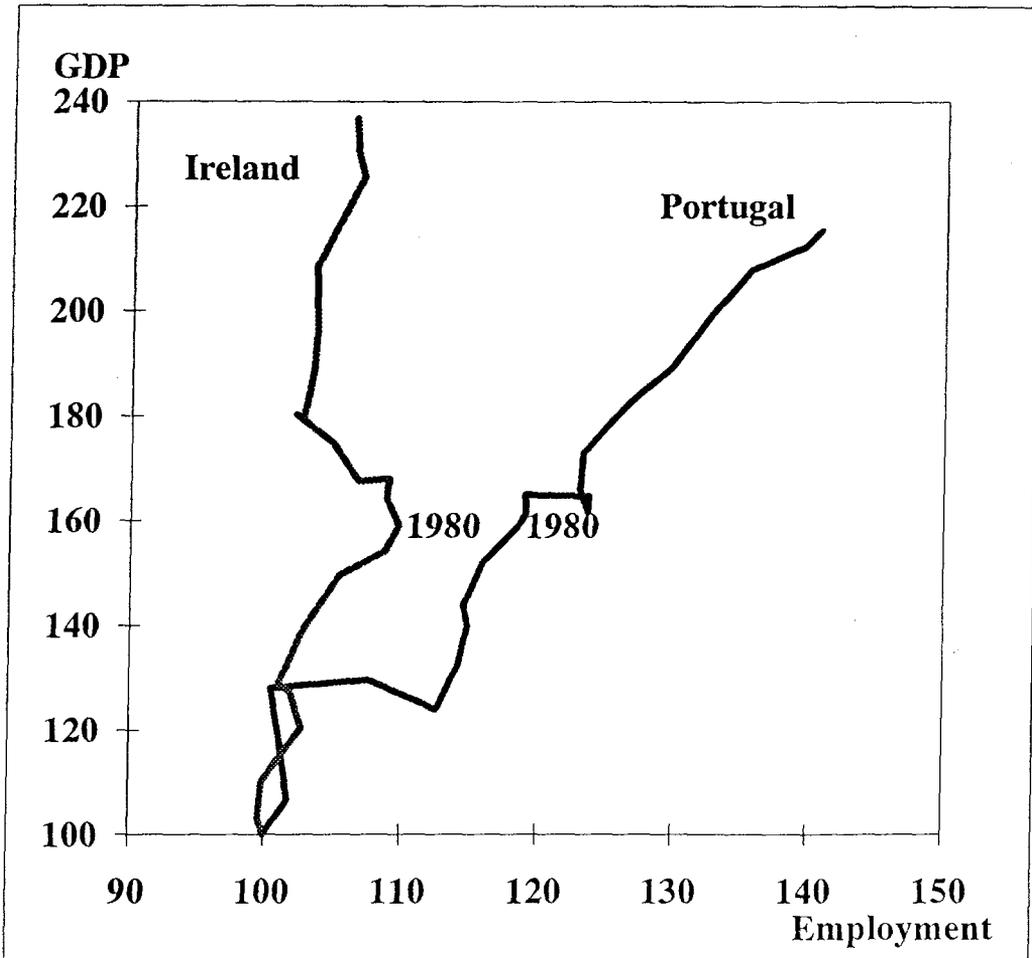


Figure 2. GDP and Employment in Ireland and Portugal in 1970-1992,  
Ind (1970) = 100



# INDUSTRY WAGE DIFFERENCES IN FINLAND, 1989<sup>78</sup>

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## 1 Introduction

Studies from different countries have documented large inter-industry wage differentials which have shown remarkable stability over time (Gittleman and Wolff 1993). Recent studies of Finnish data, (Vainionmäki and Laaksonen 1992), (Asplund 1993), (Maliranta 1993) and (Eriksson 1993), have all shown that human capital and other personal variables account for a large proportion of inter-industry wage differentials. Measured job characteristics explain a relatively smaller proportion of observed industry wage differentials.

However, standard explanations do not suffice in explaining wage differentials. Since these differences cannot be explained by differences in labour quality and work conditions, other complementary explanations are needed.

The neo-classical human capital view is based on the idea that persons with identical human resources are assumed to be equally paid. This competitive market-clearing model assumes that industry effects reflect differences in short-term demand and supply conditions, and that labour mobility should abolish these differentials in the long run. This view is contrary to empirical findings that wage premiums paid by industries persist over time.

The basic specification of the human capital earnings function developed by Mincer (1974) is widely referred to as a standard approach:

$$(1) \quad \ln y_i = X_i \alpha + \varepsilon_i,$$

where the natural logarithm of individual earnings  $\ln y_i$  is regressed on a vector  $X$  of human capital variables, where  $\alpha$  is a vector of parameters to be estimated and  $\varepsilon$  is an error term. The strength - as well as the popularity - of this approach is that the function can be further extended with other potential indicators or proxies of wage determination.

In this study some preliminary estimation results are presented regarding earnings functions in the private sector in Finland. We follow the basic strategy implemented in various studies of estimating an earnings function extended with industry dummies:

$$(2) \quad \ln y_{ij} = X_i \alpha + D_j \delta + \varepsilon_{ij},$$

where  $\ln y_{ij}$  is the log of earnings for individual  $i$  in industry  $j$ ,  $D_j$  is a vector of industry dummies,  $X_i$  is a vector of individual, job and other characteristics. In this study earnings functions of type (2) are estimated using ordinary least squares techniques.

<sup>78</sup> I thank Tor Eriksson for his helpful comments.

The alternative potential interpretation of industry wage differences is based on efficiency wage models, i.e. that wage differences reflect true differences in profit-sharing behaviour or motivation methods in industries. In such a situation persons with equal qualifications and work environments may receive different wages in different industries. In view of our cross-sectional data it is not possible to distinguish unobserved ability and the efficiency wage interpretations as it is in the case of panel data (see fixed-effect method estimations in Vainionmäki and Laaksonen (1992)).

The question is what kind of impact the controls used have on wage differences. If inclusion of the controls decreases the coefficient of a particular industry dummy, we may expect that these controls are important determinants of earnings in that particular industry. On the other hand, if large and significant coefficient values still remain after controlling for all the personal, job and other characteristics, the unmeasured factors should have a role in explaining individuals' earnings.

Secondly, to what extent can wage differences be explained by traditional human capital explanations and to what extent by other explanations? Our particular interest is in the 'new' variables. The data provides an opportunity to analyse the impact of little explored variables, such as the indicator for the use of computers and variables based on efficiency wage and insider-outsider considerations.

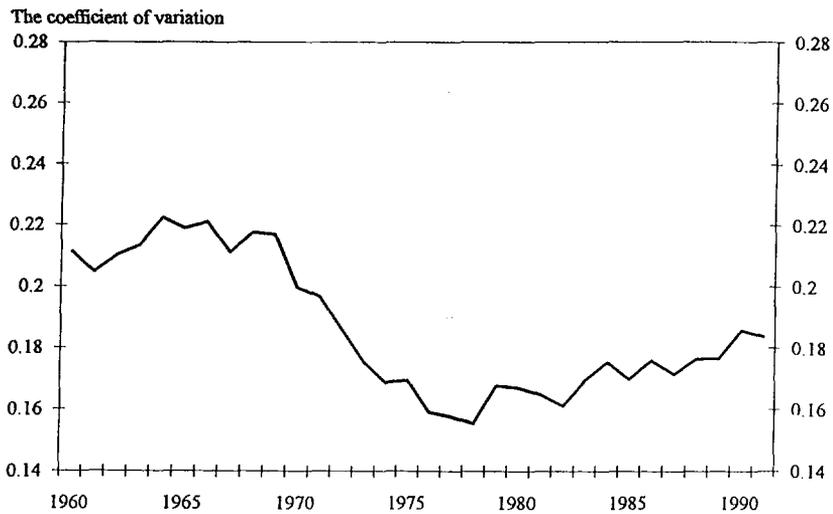
This paper is organized as follows. Section 2 describes the Finnish wage structure making some comparisons with other countries. The third section introduces the data and transformations of the variables used. Then empirical results are commented in section 4. The concluding remarks end the paper.

## **2 Wage structure in Finland and in OECD countries**

The Finnish wage structure has changed considerably over the last two decades. The coefficient of variation of average wages in private sector 27 industries (figure 1) shows that aggregate wage dispersion in Finland declined during the 1970s and the early 1980s. This development was reversed as from the mid-eighties. The changes in the Finnish wage structure have been large, although wage dispersion in Finland has been at an average level by international standards (table 1).

The development of increasing inequality is also found in several other western countries (Gittleman and Wolff 1993) and (OECD 1993a). The degree of wage dispersion is very different across countries, but developments over time in relative wages have been parallel across countries. The previous trend of compression reverted to dispersion towards the end of the 1980s.

Figure 1. The coefficient of variation of average wages in private sector 27 industries 1960 - 1991



Source: National Accounts

Table 1. Wage dispersion across manufacturing industries in OECD countries 1973-1985

	Coefficient of variation		Change 1973-1985
	1973	1985	
USA	21.6	22.5	0.9
Japan	28.8	33.1	4.3
Germany	14.5	13.7	-0.8
France	15.6	13.8	-1.8
UK	21.6	18.3	-3.3
Austria	23.2	21.7	-1.5
Belgium	23.1	16.5	-6.6
Denmark	12.6	9.8	-2.8
Finland	16.2	14.5	-1.7
Netherlands	10.0	11.0	1.0
Norway	12.2	14.2	2.0
Sweden	9.3	8.8	-0.5

Source: OECD (1993a): High and Persistent Unemployment: Assessment of the Problem and its Causes.

The data presented in table 1 suggest that in the mid-1980s industry wage dispersion was particularly pronounced in Japan but also relatively large in north America, the United Kingdom and Austria. It was relatively minor in most EC countries and particularly small in Sweden and Denmark. In Finland wage dispersion has been larger than in the other Nordic countries. The inter-industry wage differentials have also been highly persistent over a 10-15 year period (Vainionmäki and Laaksonen (1992).

In the context of the functioning of the labour market it is interesting to note that in the USA, where the labour market captures many features of the theoretical competitive labour market, wage dispersion is much greater than in countries with centralized and solidaristic wage-setting; wage inequality is much smaller in Sweden and Finland than in the USA (Edin and Zetterberg 1992), (Eriksson 1991).

Numerous explanations may be advanced to account for the developments of the late 1970s and the early 1980s. Most western countries experienced a narrowing of gender pay differences, legislated wage equalisation and reduced discrimination. In the Nordic countries centralized and solidaristic wage-setting may have had the effect of reducing wage dispersion up to the first half of the 1980s.

In many western countries the development of increased inequality in wages towards the end of 1980s may be due to the expansion of the female labour supply. Yet in Finland the development that took place towards the end of the 1980s is still an open question.

Besides the changes in wage dispersion across industries, the wage structure has also changed in Finland within industries as well as within different characteristics groups (Eriksson ja Jäntti 1993). The increase in overall wage dispersion is due to a rise in inequality within age, gender and education groups and industry sectors. In fact, inequality between groups declined between 1985 and 1990 as overall inequality increased.

### **3 Data source, the sample and variables**

The extended versions of the standard human capital functions are estimated using cross-sectional micro data from the Finnish Labour Force Survey for 1989. Earnings information is from tax registers. The actual data is restricted to wage earners in the private sector aged 15 to 64, making a total of 2949 observations. The persons involved were employed in full-time or in part-time jobs during the year. The data includes a variety of relevant human capital, personal and job characteristics variables.

The sample includes some errors. The main problems centre on contradictions between earnings and hours or months worked, response errors with part-time or temporary workers, i.e. problems with the data are related mainly to so-called atypical work. As a result, some clearly problematic elements have been excluded from the sample.

The definitions of the variables used in the estimations are described in table 1 of the Appendix. In this study the variables for labour quality, regional differences in the labour markets and individual and job characteristics are very similar to the standard variables used in several other studies, such as (Asplund 1993), (Vainionmäki and Laaksonen 1992), (Maliranta 1993) and (Eriksson 1993).

Industry dummies are formed on the basis of the 1988 Finnish Standard Industry Classification (SIC) (two- and three-digit level). The main principles and definitions of the SIC follow the recommendations in the ISIC. The final number of industry classes used is 30. The classification of industries is presented in table 2 of the Appendix. In this study, industry IND24 (fabricated metal products, machinery, etc.) is taken as the reference group in the estimations.

The dependent variable in the cross-sectional models is the log of earnings before taxes (LOGWAGE), where earnings is the 'per month' type. Earnings information is from tax registers and in accordance with the concept of 'wage income from main occupation' applied in taxation. Annual earnings are transformed into monthly wages using information on months employed in full-time and part-time work. This transformation takes due account of unemployment spells, flows into and out the labour market, i.e. entrants, job-leavers and persons with some unemployment spells during the year are also included. Fringe benefits are not taken into account. The dependent variable in this study differs from that used in the studies of Asplund (1993) and Maliranta (1993), where the dependent variable is average hourly earnings.

Most variables used in this study are standard variables found in several studies based on the human capital theory. In addition to these widely used variables the sample gives an opportunity to analyse the impact of other job characteristics variables, like the indicator (COMPUT), which tells whether users of computers are better paid.

According to insider-outsider models workers with a permanent job (INSIDER) have higher earnings than workers with 'atypical' work. The positive return on a permanent job may also capture a return on specific training and learning-by-doing and can also be interpreted as a return on seniority.

Explanations of efficiency wage models rely on the assumption that employers paying wages above the market-clearing level attract highly productive, motivated workers and that employers are unable to monitor worker performance perfectly, for example because of differences in production technology or in the organization of work. If workers have flexible work hours (EFWAGE1) and can negotiate their working time (EFWAGE2), they should have higher earnings.

## 4 Empirical results

### Standard explanations on wage determination

The first stage in our analysis is to estimate earnings functions with industry dummies only as explanatory variables. After that the control variables are introduced into the analysis. To find out whether heteroscedasticity is present we examined the estimated residual squared and used the Goldfeld-Quandt test, and found that heteroscedasticity is not very likely. Sample means and standard deviations by sector are displayed in table 2. The estimations results are presented in table 3 of the Appendix.

Table 2. Sample means and standard deviations by sector for all employers included in the data

Variable	mean	standard deviation
WAGE	8495.07	4308.02
LOGWAGE	8.94	0.4772480
IND1(1,0)	0.0244	0.1543601
IND7(1,0)	0.0017	0.0411484
IND11(1,0)	0.0437	0.2045589
IND12(1,0)	0.0336	0.1801519
IND141(1,0)	0.0305	0.1720391
IND151(1,0)	0.0359	0.1861831
IND16(1,0)	0.0329	0.1783855
IND17(1,0)	0.0085	0.0916975
IND18(1,0)	0.0180	0.1328728
IND19(1,0)	0.0027	0.0520225
IND21(1,0)	0.0146	0.1198894
IND22(1,0)	0.0163	0.1265591
IND231(1,0)	0.0092	0.0952623
IND24(1,0) (base group)	0.1197	0.3246673
IND29(1,0)	0.0051	0.0711499
IND31(1,0)	0.0125	0.1113257
IND35(1,0)	0.1051	0.3067605
IND411(1,0)	0.0570	0.2318217
IND431(1,0)	0.1126	0.3161330
IND451(1,0)	0.0264	0.1604955
IND47(1,0)	0.0515	0.2211398
IND51(1,0)	0.0485	0.2148378
IND57(1,0)	0.0078	0.0879832

IND61(1,0)	0.0488	0.2155493
IND65(1,0)	0.0353	0.1844831
IND71(1,0)	0.0475	0.2126859
IND85(1,0)	0.0092	0.0952623
IND87(1,0)	0.0176	0.1316360
IND91(1,0)	0.0142	0.1185076
IND95(1,0)	0.0092	0.0952623
EDUC1(1,0) (base group)	0.3835	0.4863256
EDUC3 (1,0)	0.3384	0.4732524
EDUC4 (1,0)	0.2045	0.4033867
EDUC5 (1,0)	0.0380	0.1911778
EDUC67 (1,0)	0.0346	0.1827649
EDUC8 (1,0)	0.0010	0.0318842
EXP	16.81	11.0581212
SENIOR	8.19	8.4647669
TRAIN (1,0)	0.3815	0.4858336
2SHIFT (1,0)	0.1234	0.3289878
3SHIFT (1,0)	0.0450	0.2148378
OCC31 (1,0)	0.0471	0.2119627
OCC32 (1,0)	0.0699	0.2549443
OCC41 (1,0)	0.0773	0.2671349
OCC1 (1,0) (base group)	0.2700	0.4439943
OCC52 (1,0)	0.3000	0.4583797
OCC51 (1,0)	0.2357	0.4244908
COMPUT (1,0)	0.4191	0.4934996
MARRIED (1,0)	0.5697	0.4952042
SEX (1,0)	0.5717	0.4949135
SOUTH (1,0)	0.6673	0.4712441
MIDDLE (1,0)(base group)	0.2265	0.4186487
NORTH (1,0)	0.1021	0.3027897
UNION (1,0)	0.6866	0.4643328
INSIDER (1,0)	0.9040	0.2945928
EFWAGE1 (1,0)	0.3964	0.4892334
EFWAGE2 (1,0)	0.0271	0.1624835
PART (1,0)	0.0702	0.25552
number of obs.	2949	

The standard earnings functions extended with industry dummies are estimated with controls for the impact of marriage (MARRIED), gender (SEX), formal education (EDUC), work experience (EXP) and its square (EXP2), seniority (SENIOR), unionization (UNION) and indicators for the area of residence: (SOUTH), (NORTH) (model 2). The controls have the expected signs and are clearly significant. One exception is the indicator for the northern part of Finland (NORTH).

The level of monthly earnings is expected to be some 74 % higher for high school those with higher education (EDUC67) than for those with only basic education. This result implies that there are strong economic incentives to continue in formal education. The wage premium obtained for being married, the 'marriage premium' (MARRIED) is 5.5 %. Gender (SEX) has a particularly strong impact on earnings. The estimation results suggest that men earn in excess of 27 % more per month than women. This may reflect existing sex discrimination in the labour market.

The variable (UNION) captures the utility obtained from unionization. Estimation results suggest that unionization has a clearly significant impact on earnings: unionized workers earn over 4 % more than non-unionized workers.

What impact does inclusion of these controls have on industry coefficients? The estimation results suggest that inclusion of these variables decreases the coefficients of industry dummies strongly in most industries, for example in mining and quarrying (IND7), textiles, apparel, leather, etc. (IND12), basic metal industries (IND231), automotive distributors and services (IND451). These characteristics are important determinants of individual earnings, particularly in food, beverages, etc. (IND11), restaurants and hotels (IND47), real estate and rental services (IND65), medical, etc. services (IND87) and in personal and household services (IND95).

Next we try to capture the impact of the employer-sponsored training (TRAIN) during the year (model 3). This variable has a strong impact of over 11 % on earnings and is highly significant. The estimation results suggest that the inclusion of this indicator for investment in firm-specific skills decreases industry coefficients most clearly in petroleum refineries, coal and nuclear energy (IND19), communications (IND57), financial institutions (IND61).

The impact of part-time work on earnings is examined in model 4. The proportion of part-time workers in the sample is 7 %. 2.6 % of employees reported working part-time for 12 months in the year. The estimation results suggest that part-time work has a negative but insignificant impact on earnings.

Next we add the indicators for different occupation groups to the earnings function (model 5). The base group is 'other lower-level officials'. The introduction of occupation variables (OCC31-OCC52) as job characteristics variables may be critical, since occupations are usually correlated with the level of education. The occupation controls are clearly significant and have the expected signs. Controlling for occupation increases the explained sum of squares by over 3 % and decreases the industry coefficients in some industries, most clearly in agriculture, forestry etc. (IND1) and in real estate and rental services (IND65).

To what extent are existing earnings differences explained by these "standard" explanations? In terms of  $R^2$ , the inclusion of these variables increases the explained sum of squares by over 30 percentage points, thus they are important determinants of earnings.

### **The use of computers, shift work, permanent job and efficiency wage considerations**

In this study the impact of little explored variables of wage determination are of particular interest. The final stage of the analysis attempts to capture the impact of the use of computers in work (COMPUT), shift work (2SHIFT, 3SHIFT), permanent job (INSIDER) and efficiency wage considerations (EFWAGE1, EFWAGE2) on wage determination.

In model 6 the indicator for the use of computers is incorporated in the earnings function. Estimation results suggest that the use of computers increases earnings over 8 %. This indicator decreases the coefficient of industry dummies only slightly. In financial institutions and insurance (IND61) the use of computers has an impact on earnings and particularly in medical, dental, etc. services (IND87), where the coefficient completely vanished after inclusion of the computer control.

In model 7 the indicators for shift work (2SHIFT, 3SHIFT), and the more modern explanations of wage determination based on the 'non-market clearing' tradition, namely the indicators for efficiency wages (EFWAGE1, EFWAGE2) and insider-outsider considerations (INSIDER), are incorporated into the earnings function. According to Maliranta (1993), shift work (2SHIFT, 3SHIFT) is an important determinant of earnings in the manufacture of pulp, paper and paper products. We found the same impact (not reported here). The finding that three-shift work has stronger impact on earnings than two-shift work is also consistent with Maliranta (1993).

Permanent job (INSIDER) has a strong impact on earnings. Workers who reported having a permanent job have earnings over 9 % higher than workers with an 'atypical' job. Flexible working hours (EFWAGE1) also increase earnings. In contrast, negotiation of working time (EFWAGE2) has no significant impact on earnings. Inclusion of these indicators increases the explained sum of squares only slightly.

We tried to elucidate the role of the use of computers, efficiency wages and insider-outsider considerations by forming different interaction dummies (table 3). Interaction controls were incorporated one by one into model 7. The interaction effect between occupation groups and the use of computers (OCC31-OCC52)\*(COMPUT) revealed an insignificant impact on earnings (it should be mentioned that in the case of senior officials (OCC31) the negative interaction effect was nearly significant at 5% level). We also examined the impact of the indicator (COMPUT)\*(TRAIN). However, the effect of this indicator on earnings was insignificant.

The significant impacts of different interaction dummies are as follows. The interaction (OCC32)\*(EFWAGE1) revealed a positive 13.5 % impact on earnings, indicating that flexible working hours explain the earnings of other senior officials and employees. The indicator (OCC52)\*(UNION) revealed a positive of over 7% impact on earnings, which implies that manufacturing workers obtain utility from unionization. In comparison, in the case of other senior officials and employees the impact is negative.

The interaction effect of permanent job and work experience (INSIDER)\*(EXP) revealed weak positive impact on earnings, while the impact of (INSIDER)\*(UNION) was clearly negative. The interaction effect between occupation groups and permanent job (OCC31-OCC52)\*(INSIDER) shows that manufacturing workers gain utility from their insider position.

## 5 Concluding remarks

As a summary of the wage structure, the non-controlled and controlled wage premiums are presented in figure 2. The premiums are employment-weighted wage differences calculated from the coefficient values of industry dummies. The "non-controlled" premiums are calculated using the estimation results of the model extended with industry dummies only, i.e. model 1. The "controlled" premiums are calculated using the results of model 7. The wage premium could be interpreted as the utility of individuals being in a particular industry, compared to a randomly selected individual.

The general observation is that controlling for labour, job and other characteristics decreases wage premiums. The equalizing impact of control variables is particularly pronounced in chemical products (IND18), petroleum refineries (IND19) (note: eight observations only), basic metal industries (IND231), electricity, gas and water (IND31), restaurants and hotels (IND47), real estate and rental services (IND65) and in medical, dental etc. services (IND87).

However, the calculated premiums and the estimation results suggest that despite controlling for personal and job characteristics and our 'new' explanations, there remain large and statistically significant wage premiums. In recreational and cultural services (IND91) for example, the premium remains constant after control. In some industries the signs of the coefficients are even reversed.

What is the role of the industry indicators in explaining individual earnings? The results of a general F-test using the information of restricted and unrestricted models suggest that we may reject the hypothesis that wage differences do not depend on industry dummies and we can accept the unrestricted version (model 7) representing the wage determination of individuals' earnings.

Table 3. Interaction effects of selected variables. Indicators are incorporated into model 7. The dependent variable is log earnings

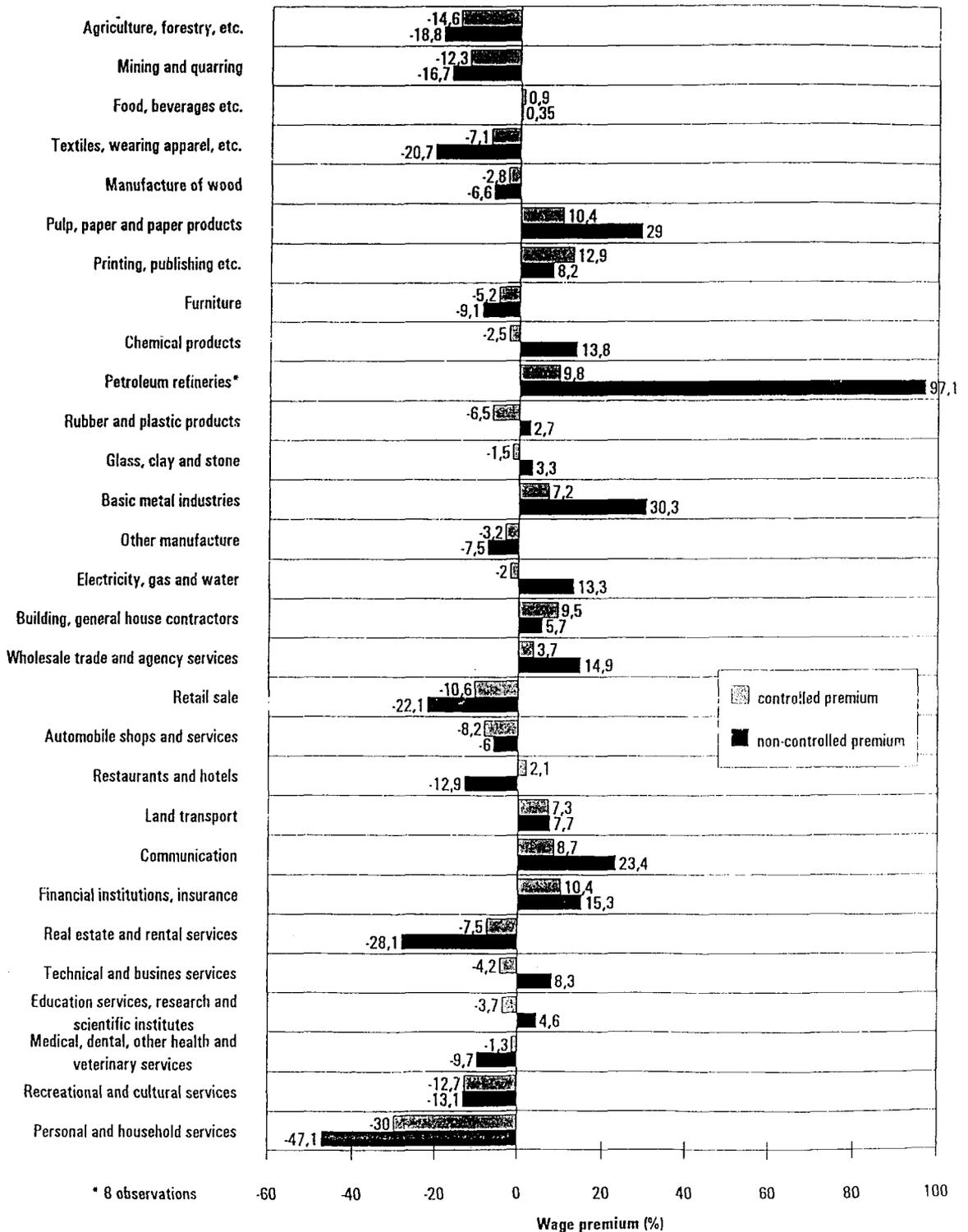
Interaction	Coefficient	Standard error
<u>Occupation and efficiency wages</u>		
(OCC31)*(EFWAGE1)	-0.059	(0.070)
(OCC32)*(EFWAGE1)	0.135*	(0.057)
(OCC41)*(EFWAGE1)	-0.055	(0.050)
(OCC52)*(EFWAGE1)	-0.003	(0.033)
(OCC51)*(EFWAGE1)	-0.027	(0.033)
<u>Occupation and unionization</u>		
(OCC31)*(UNION)	-0.051	(0.065)
(OCC32)*(UNION)	-0.125*	(0.056)
(OCC41)*(UNION)	0.055	(0.058)
(OCC52)*(UNION)	0.071*	(0.037)
(OCC51)*(UNION)	0.031	(0.033)
<u>Permanent job, work-experience and unionization</u>		
(INSIDER)*(EXP)	0.009**	(0.002)
(INSIDER)*(UNION)	-0.122**	(0.047)
<u>Occupation and permanent job</u>		
(OCC31)*(INSIDER)	0.324	(0.210)
(OCC32)*(INSIDER)	-0.078	(0.095)
(OCC41)*(INSIDER)	-0.275*	(0.124)
(OCC52)*(INSIDER)	0.218**	(0.051)
(OCC51)*(INSIDER)	-0.179**	(0.051)

An interesting question is the relative importance of the industry dummies and the other variables, especially the 'new' indicators in wage determination. Here we make only rough comparisons between the importance of these explanations in terms of  $R^2$ . As an indication of the role of industry dummies in explaining earnings, the explained sum of squares increased by 2.7 percentage points once industry controls were added to an equation already controlled for marital status, gender, formal education, work experience, seniority, area of residence and unionization (model 2). In comparison, the inclusion of employee-sponsored training, part-time work and occupation increased  $R^2$  by 4.6 percentage points.

The explained sum of squares increased by nearly 2.4 percentage points once industry controls were added to an equation already controlled for all the other control variables but excluding the new variables (COMPUT), (2SHIFT), (3SHIFT), (INSIDER), (EFWAGE1) and (EFWAGE2). In comparison, the inclusion of the 'new' variables with the exclusion of industry dummies increased the  $R^2$  by 1.42 percentage points. The general observation from our estimations is that "standard" personal characteristics are the most important determinants of individual earnings. This finding is consistent with the results of other studies made on Finnish data.

Figure 2. Wage premiums across industries 1989

(Employment-weighted wage differences)



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**Appendix.**

Table 1. Summary of definitions of included variables

<b>Variable</b>	<b>Definition</b>
WAGE	Average monthly earnings (in FIM) calculated from gross annual wages from principal occupation taken from tax registers and number of months worked.
LOGWAGE	Natural logarithm of WAGE
EDUC1	Basic education
EDUC3	Dummy=1; lower-level education
EDUC4	Dummy=1; upper-level of secondary education
EDUC5	Dummy=1; undergraduate university education
EDUC67	Dummy=1; university education (lower and upper level)
EDUC8	Dummy=1; researcher-level education
EXP	Work experience
EXP2	EXP*EXP
SENIOR	Years with the present employer (seniority)
TRAIN	Dummy=1; employer-sponsored training during the year
2SHIFT	Dummy=1; 2-shift work
3SHIFT	Dummy=1; 3-shift work
OCC31	Dummy=1; senior official and employee in research and planning
OCC32	Dummy=1; other senior official and employee
OCC41	Dummy=1; lower-level supervisory official
OCC1	other lower level official
OCC52	Dummy=1; manufacturing worker
OCC51	Dummy=1; other production worker
COMPUT	Dummy=1; employees working with computers
MARRIED	Dummy=1; married
SEX	Dummy=1; male
SOUTH	Dummy=1; residence in the provinces of Uusimaa, Turku and Pori, Häme and Kymi
NORTH	Dummy=1; residence in the provinces of Oulu and Lappi
MIDDLE	Residence in the middle part of Finland (provinces of Vaasa, Keski-Suomi, Kuopio, Mikkeli and North-Carelia) and the province of Åland
UNION	Dummy=1; unionized employee
INSIDER	Dummy=1; permanent job
EFWAGE1	Dummy=1; flexible working hours
EFWAGE2	Dummy=1; employee able to negotiate own working hours
PART	Dummy=1; employee working part-time

Table 2. Industry classification in this research

IND1	Agriculture and forestry
IND7	Mining and quarrying
IND11	Food, beverages, etc.
IND12	Textiles, apparel, etc.
IND141	Manufacture of wood
IND151	Pulp, paper and paper products
IND16	Printing, publishing, etc.
IND17	Furniture
IND18	Chemical products
IND19	Petroleum refineries
IND21	Rubber and plastic products
IND22	Glass, clay and stone
IND231	Basic metal industries
IND24	Fabricated metal products, machinery etc.
IND29	Other manufacture
IND31	Electricity, gas and water
IND35	Building, general house contractors
IND411	Wholesale trade and agency services
IND431	Retail sale
IND451	Automobile distributors and services
IND47	Restaurants and hotels
IND51	Land transport
IND57	Communication
IND61	Financial institutions, insurance
IND65	Real estate and rental services
IND71	Technical and business services
IND85	Education services, research and scientific institutes
IND87	Medical, dental, other health and veterinary services
IND91	Recreational and cultural services
IND95	Personal and household services

Table 3. Estimations of the earnings function using cross-sectional data from the Finnish Labour Force Survey for 1989. The dependent variable is log monthly earnings

	model 1	model 2	model 3	model 4	model 5	model 6	model 7
Intercept	9.036** (0.024)	8.254** (0.036)	8.257** (0.036)	8.267** (0.037)	8.331** (0.040)	8.294** (0.041)	8.217** (0.045)
IND1	-0.291** (0.058)	-0.218** (0.050)	-0.227** (0.050)	-0.225** (0.050)	-0.176** (0.051)	-0.170** (0.051)	-0.168** (0.051)
IND7	-0.265 (0.202)	-0.161 (0.167)	-0.125 (0.166)	-0.127 (0.166)	-0.096 (0.162)	-0.084 (0.161)	-0.142 (0.160)
IND11	-0.079 (0.046)	-0.003 (0.039)	-0.020 (0.039)	-0.020 (0.039)	0.002 (0.038)	0.004 (0.038)	-0.002 (0.038)
IND12	-0.314** (0.051)	-0.104* (0.043)	-0.090* (0.043)	-0.092* (0.043)	-0.095* (0.042)	-0.084* (0.042)	-0.084* (0.042)
IND141	-0.151** (0.053)	-0.056 (0.045)	-0.053 (0.044)	-0.054 (0.044)	-0.033 (0.043)	-0.021 (0.043)	-0.039 (0.043)
IND151	0.172** (0.050)	0.127** (0.042)	0.105* (0.042)	0.106* (0.041)	0.149** (0.041)	0.136** (0.041)	0.088* (0.043)
IND16	-0.004 (0.052)	0.128** (0.043)	0.123** (0.043)	0.125** (0.043)	0.129** (0.042)	0.125** (0.042)	0.111** (0.042)
IND17	-0.178* (0.093)	-0.090 (0.077)	-0.061 (0.076)	-0.063 (0.076)	-0.075 (0.074)	-0.060 (0.074)	-0.064 (0.074)
IND18	0.047 (0.066)	0.013 (0.055)	-0.010 (0.055)	-0.010 (0.055)	-0.009 (0.054)	-0.017 (0.053)	-0.036 (0.054)
IND19	0.596** (0.161)	0.244 (0.133)	0.186 (0.132)	0.187 (0.132)	0.141 (0.129)	0.118 (0.129)	0.083 (0.129)
IND21	-0.056 (0.073)	-0.056 (0.060)	-0.050 (0.059)	-0.051 (0.059)	-0.048 (0.058)	-0.057 (0.058)	-0.078 (0.058)
IND22	-0.050 (0.069)	-0.031 (0.057)	-0.031 (0.057)	-0.031 (0.057)	-0.013 (0.055)	-0.004 (0.055)	-0.026 (0.055)
IND231	0.182* (0.090)	0.083 (0.074)	0.077 (0.074)	0.079 (0.074)	0.084 (0.072)	0.087 (0.072)	0.059 (0.072)
IND29	-0.160 (0.118)	-0.073 (0.098)	-0.077 (0.097)	-0.077 (0.097)	-0.060 (0.095)	-0.054 (0.094)	-0.043 (0.094)
IND31	0.042 (0.078)	-0.020 (0.064)	-0.047 (0.064)	-0.047 (0.064)	-0.035 (0.062)	-0.033 (0.062)	-0.031 (0.062)
IND35	-0.027 (0.035)	0.026 (0.030)	0.034 (0.029)	0.033 (0.029)	0.049 (0.027)	0.067* (0.029)	0.080** (0.029)

IND411	0.056 (0.042)	0.067 (0.036)	0.052 (0.036)	0.051 (0.036)	0.040 (0.037)	0.037 (0.037)	0.026 (0.037)
IND431	-0.332** (0.034)	-0.102** (0.030)	-0.110** (0.030)	-0.106** (0.030)	-0.119** (0.032)	-0.113** (0.032)	-0.123** (0.032)
IND451	-0.144** (0.056)	-0.041 (0.047)	-0.075* (0.047)	-0.075 (0.047)	-0.076 (0.048)	-0.079 (0.048)	-0.096* (0.048)
IND47	-0.221** (0.044)	-0.020 (0.037)	0.016 (0.037)	0.017 (0.037)	0.042 (0.040)	0.042 (0.040)	0.010 (0.041)
IND51	-0.008 (0.045)	0.038 (0.037)	0.031 (0.037)	0.031 (0.037)	0.074 (0.039)	0.073 (0.039)	0.060 (0.039)
IND57	0.128 (0.097)	0.094 (0.080)	0.049 (0.079)	0.051 (0.079)	0.060 (0.079)	0.064 (0.078)	0.073 (0.078)
IND61	0.060 (0.044)	0.140** (0.039)	0.100** (0.039)	0.100** (0.039)	0.099* (0.039)	0.083* (0.039)	0.088* (0.039)
IND65	-0.412** (0.050)	-0.144** (0.043)	-0.142** (0.043)	-0.138* (0.043)	-0.086* (0.044)	-0.078 (0.044)	-0.089* (0.044)
IND71	-0.003 (0.045)	0.007 (0.039)	-0.016 (0.038)	-0.012 (0.038)	-0.035 (0.039)	-0.042 (0.039)	-0.054 (0.039)
IND85	-0.038 (0.090)	-0.068 (0.075)	-0.077 (0.074)	-0.071 (0.075)	-0.053 (0.074)	-0.048 (0.073)	-0.048 (0.073)
IND87	-0.184** (0.067)	-0.048 (0.057)	-0.056 (0.056)	-0.054 (0.056)	-0.030 (0.056)	-0.004 (0.056)	-0.024 (0.056)
IND91	-0.223** (0.073)	-0.129* (0.062)	-0.143* (0.061)	-0.134* (0.061)	-0.147* (0.061)	-0.135* (0.061)	-0.147* (0.061)
IND95	-0.719** (0.090)	-0.363** (0.075)	-0.382** (0.075)	-0.383** (0.075)	-0.341** (0.074)	-0.317** (0.074)	-0.325** (0.074)
MARRIED		0.055** (0.016)	0.049** (0.016)	0.050** (0.016)	0.039* (0.015)	0.036* (0.015)	0.033* (0.015)
SEX		0.274** (0.016)	0.271** (0.016)	0.269** (0.016)	0.257** (0.017)	0.259** (0.017)	0.255** (0.017)
EDUC3		0.077** (0.017)	0.071** (0.017)	0.069** (0.017)	0.063** (0.017)	0.059** (0.017)	0.064** (0.017)
EDUC4		0.248** (0.021)	0.220** (0.021)	0.218** (0.021)	0.133** (0.022)	0.123** (0.022)	0.131** (0.022)
EDUC5		0.447** (0.038)	0.401** (0.038)	0.398** (0.038)	0.220** (0.041)	0.202** (0.041)	0.205** (0.041)
EDUC67		0.742** (0.040)	0.695** (0.040)	0.694** (0.040)	0.459** (0.044)	0.450** (0.044)	0.458** (0.044)

EDUC8	0.740** (0.219)	0.707** (0.217)	0.702** (0.217)	0.481* (0.213)	0.516* (0.212)	0.522* (0.211)
EXP	0.028** (0.002)	0.026** (0.002)	0.025** (0.002)	0.022** (0.002)	0.022** (0.002)	0.021** (0.002)
EXP2	-0.001** (0.0001)	-0.001** (0.0001)	-0.001** (0.0001)	-0.001** (0.0001)	-0.001** (0.0001)	-0.001** (0.0001)
SENIOR	0.005** (0.001)	0.005** (0.001)	0.005** (0.001)	0.004** (0.001)	0.004** (0.001)	0.004** (0.001)
NORTH	0.026 (0.026)	0.023 (0.026)	0.023 (0.026)	0.020 (0.025)	0.019 (0.025)	0.017 (0.025)
SOUTH	0.088** (0.017)	0.084** (0.017)	0.084** (0.017)	0.085** (0.017)	0.080** (0.016)	0.071** (0.017)
UNION	0.043** (0.017)	0.037* (0.016)	0.034* (0.016)	0.063** (0.016)	0.062** (0.016)	0.056** (0.016)
TRAIN		0.114** (0.015)	0.113** (0.015)	0.081** (0.015)	0.066** (0.016)	0.060** (0.016)
PART			-0.038 (0.030)	-0.040 (0.029)	-0.034 (0.029)	-0.018 (0.029)
OCC31				0.388** (0.038)	0.390** (0.037)	0.384** (0.037)
OCC32				0.195** (0.033)	0.197** (0.033)	0.199** (0.033)
OCC41				0.088** (0.030)	0.095** (0.030)	0.094** (0.030)
OCC52				-0.043 (0.027)	-0.021 (0.028)	-0.032 (0.028)
OCC51				-0.079** (0.025)	-0.049* (0.025)	-0.050* (0.025)
COMPUT					0.082** (0.017)	0.070** (0.017)

2SHIFT							0.063** (0.022)
3SHIFT							0.136** (0.036)
INSIDER							0.092** (0.025)
EFWAGE1							0.032* (0.015)
EFWAGE2							0.034 (0.041)
R(adj.)	0.1151	0.3797	0.3911	0.3913	0.4223	0.4270	0.4334
SEE	0.44894	0.37027	0.36684	0.36680	0.35732	0.35588	0.35389
F	14.225	43.452	44.520	43.555	44.464	44.410	41.508
N of obs.	2948	2913	2913	2913	2913	2913	2913

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1 Standard errors are in parentheses.

\* Significant estimate at a 5% level.

\*\* Significant estimate at a 1% level.

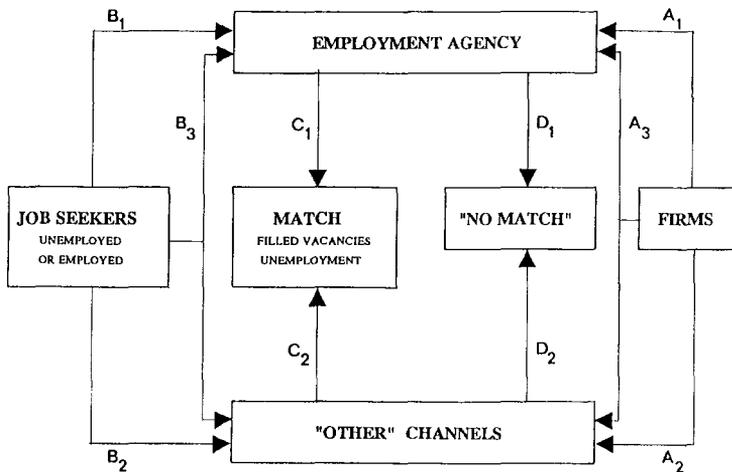
## ON VACANCIES

by Juha Rantala, Government Institute for Economic Research

The purpose of this presentation is to discuss the labour market matching process from the employer's point of view. First of all I will briefly present the searching process undertaken by job-seekers and firms by means of a simple chart. I will then give an empirical example of the recruitment process of the firm.

The matching process can be described in terms of inflows and outflows of jobseekers and vacancies. In chart 1 the two inflows into the "search market" are presented, A for vacancies and B for job-seekers. These two inflows have been further divided into smaller parts.

Chart 1. Search of firms and job-seekers



In the "search market" firms and job-seekers search each other. The searching period<sup>79</sup> depends for example on the number of searchers, the efficiency of the labour market, the intensity of the search, and the quality of job-seekers and vacancies in relation to each other. As a result of this process there is an outflow of matches (stream C). Job-seekers or firms may also be unsuccessful in their search and leave the market, in which case there is no match (stream D).

<sup>79</sup> The searching or matching period means in the case of job-seekers the length of time spent searching, for unemployed persons the duration of the spell of unemployment, and for employers the length of time a vacancy is open.

This simplified matching process can be studied from many different points of view. One may be interested in such long-term questions as the 'mismatch' between aggregate labour demand and supply, macroeconomic shocks and their effects on fluctuations in unemployment and macroeconomic policy and its effects on the level of employment.

In the short term and at the micro level one can find detailed answers to the matching process at an individual level. Much research has been done into the supply side of the market. Unemployment benefit and its effects on the duration of unemployment is one such important issue. Studies on the demand side are, however, quite rare, although analysis of the stock of vacancies, vacancy flows and vacancy duration can also provide valuable information about labour demand and the functioning of the labour market in general.

Research on the demand side also provides information about job-seekers' chances of finding a job. The importance of this becomes clear when the probability of finding a job is decomposed into the product of the probability of obtaining a job offer and the probability that the job offer is accepted.

In many cases it may be reasonable to assume that the probability that a job-seeker accepts a job offer is near one. This means that the decision whether a contact between an employer and a job-seeker results in a match is predominantly made by employers and not by job-seekers.

Demand-side information is also valuable for labour-market policy-makers. In many situations policy-makers have to know how sudden policy changes will affect the willingness of firms to hire new workers.

I will now present an empirical micro example of the matching process from the demand perspective. In particular I will consider the outcome of employer searches, i.e. the rate at which vacancies are filled.

The purpose of this example is twofold. Firstly, I will compare the vacancy duration of different types of jobs. One can then analyse the structure of labour demand, e.g. what kind of vacancies are easy or hard to fill.

Secondly, I will compare different recruitment channels used by employers. In the model the success of the use of a recruitment channel depends on the efficiency of the channel. The effectiveness of each channel is measured by the time it takes to find a new employee, in other words the vacancy duration.

### **Theoretical model of the employer search**

Here the traditional employer search model is used, meaning that when a firm needs a new employee it has to decide how long it is reasonable to search for an employee. The longer or the more intensively the firm searches, the better chances it will have of finding a suitable worker. The search process is not costless. Testing applicants,

advertising and the loss of production are costly. The firm then has to decide when to stop the search and hire a new employee.

According to the search theory, the optimal strategy for an employer with given wages is to accept the applicant, if her or his marginal product is equal or exceeds minimally acceptable product if the search is continued (reservation product). The searching process is assumed to be sequential. This assumption does not sound unrealistic, because the data consists of technical blue collar vacancies, where such a recruitment strategy is natural.

The model has been extended to include different search channels. Firms can use the services of free employment agencies. Direct searching costs are then minimal. Firms can also use other channels, for example costly newspaper advertisements, and thereby increase the probability of finding an acceptable employee. In that case the direct cost of the search increases.

## The model

The decision problem of the firm is studied using duration analysis. The model is estimated in a reduced form, meaning that the probability of filling the vacancy is not decomposed into the probability of obtaining an applicant and the probability that this applicant is found suitable for the job.<sup>80</sup>

The different recruitment channels are modelled within the framework of competing risks. When only one exit channel is allowed in the competing risks framework, it reduces to the traditional duration model.

The model for vacancy duration is estimated in a log-linear regression form separately for each channel. The model for exit channel  $j = 1, 2, 3$  is

$$(1) \text{Log}T_j = a + bX + sw,$$

where  $a$  is the constant term,  $X$  is the vector of explanatory variables,  $s$  is the scale parameter and  $w$  is the distribution assumption, which in this case is log normal.<sup>81</sup> Two crucial assumptions behind the model are that heterogeneity is totally controlled by the explanatory variables and that the search channels are mutually exclusive. The latter assumption means that one channel does not affect the functioning of the other channel.

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<sup>80</sup> Estimating the model in reduced form is not a serious defect, because the job-seeker's decision to accept a job offer does not have any great effect on vacancy duration.

<sup>81</sup> More general distribution assumptions were also used, but log normal seemed to fit the data quite well.

## Data

The data comprises vacancies and vacancy durations reported to employment agencies in the metropolitan area of Helsinki in 1989. At that time the Finnish economy was overheated and there was a shortage of labour. The data consists of vacancies for employees with upper secondary education in science and technology. The number of observations is about 2500.

There are three exit channels in the data. The first is the recruitment channel through the government employment agency. The second channel is recruitment through other channels, meaning that the firm has advertised its vacancy to the employment agency, but found its employee through other channels. The last channel is cancelled vacancies. In these cases the firm did not find an employee.<sup>82</sup>

There are several explanatory variables in this study. The only continuous variable is the UV ratio, which is the ratio of the number of unemployed persons to the number of vacancies in each subregion and occupation. The rest of the variables are dummies which characterize vacancies. The first dummy variable is REGION, which takes into account regional differences such as market size. Other dummy variables are INDUSTRY, OCCUPATION, TEMPORARY JOBS and SHIFT WORK.

## Some estimation results

In table 1 the two exit channels are compared. If the estimated parameters in a relatively uniform group of vacancies are different in the two channels, the rate at which vacancies are filled - the "efficiency"- differs in the two channels. The results show that in the reference group, for example, vacancies are filled more slowly through the government employment agency than through the other channel. This is because the value of the constant term is greater in the first channel.<sup>83</sup>

One can also see from the table the effects of explanatory variables separately for each channel. For example, the coefficient of the UV variable is negative, as expected (in both channels). When the UV ratio increases, for example because unemployment has increased, vacancy duration decreases.

One can also see how regional differences affect vacancy duration. In Helsinki, vacancy duration was shorter in both channels than in the other cities. This result gives some support to the theory that vacancy duration is shorter in the larger labour markets. The differences are not so clear-cut when one compares Helsinki to the outlying metropolitan area. In particular, when a vacancy is filled through the second channel, the differences are not significant. This may be due to the fact that in this case the whole metropolitan area, Helsinki, Espoo and Vantaa, forms a single recruitment area.

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<sup>82</sup> In this paper cancelled vacancies are not shown even though they have been estimated.

<sup>83</sup> The effect of the scale parameter on expected vacancy duration is omitted.

Table 1. Competing risks model. Dependent variable = log (vacancy duration)

CHANNEL VARIABLE	CHANNEL 1		CHANNEL 2	
	Estimates	t-value	Estimates	t-value
CONSTANT	4.31		4.14	
REGION				
Other cities near Helsinki	0.67	6.3	0.28	4.7
Outlying metropolitan area (Espoo, Vantaa)	0.63	6.4	0.08	1.4
Helsinki	0	.	0	.
OCCUPATION				
Technical "supervision"	0.67	2.4	-0.05	1.4
Construction	0.50	2.7	-0.67	6.0
Food and beverages	0.90	2.2	0.49	2.7
Metal working	-0.60	2.4	-0.13	1.1
Welding	-0.63	2.4	0.06	0.5
Metal plating and coating work	-0.73	2.3	0.14	0.8
Electrical	0	.	0	.
INDUSTRY				
Manufacture of food	-0.18	0.5	-0.64	3.8
Manufacture of paper	-0.99	3.7	-0.50	3.0
Construction	-0.33	2.7	-0.02	0.2
Public services	-0.59	2.0	-0.27	1.6
Metal products and equipment	0	.	0	.
"DURATION" OF THE JOB				
Temporary job	-0.65	3.9	-0.57	5.4
Permanent job	0	.	0	.
TYPE OF JOB				
Shift work	0.09	0.5	0.37	4.0
Regular work	0	.	0	.
UV Ratio	-0.33	4.8	-0.07	1.5
Scale parameter	1.53	.	0.94	.
Log likelihood	-2095.5		-2129.5	

The reference group: Helsinki; metal products and equipment; electrical; permanent jobs and regular jobs.

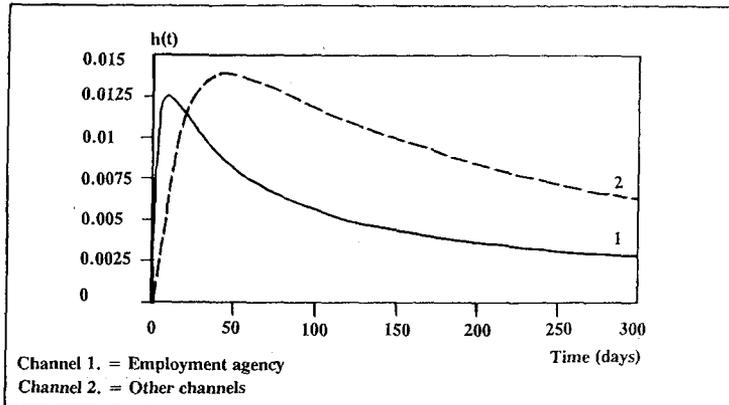
CHANNEL 1 = Vacancy filled through government employment agency

CHANNEL 2 = Vacancy filled through other recruitment channels

CHANNEL 3 = Vacancy withdrawn (not shown)

Finally, one can look at the shape of the estimated functions. Chart 2 presents the cause-specific hazard functions<sup>84</sup> of vacancy duration for the two channels in the case of the reference group.

Chart 2. Cause-specific hazard function for channel 1 and 2



In the chart the hazards seem to progress in stages. The hazard function of the employment agency channel grows fast at the beginning of the vacancy duration and reaches its peak after about two weeks. From there on the probability that the job is filled declines quite smoothly. For the second channel, where the vacancy is filled via other channels, the hazard function grows more slowly at the beginning of vacancy duration. This function reaches its maximum after one and a half months.

It seems therefore that at the beginning of vacancy duration it is usual for a job to be filled via an employment agency. This is to be expected, since the use of this channel is cost-free. If a suitable applicant cannot be found through this channel, the costs incurred by unfilled vacancies mount, and the search is intensified by resorting to other, more expensive channels (newspaper advertisements for example).

<sup>84</sup> The cause-specific hazard function for channel  $i$  measures the approximate probability that the vacancy is filled within a short space of time via channel  $i$ , conditional on vacancy duration and that the vacancy is not allowed to be filled via other channels.

## **THE EFFECT OF PROGRESSIVE INCOME TAXATION ON THE SUPPLY OF MALE LABOUR IN FINLAND<sup>85</sup>**

**by Mika Kuismanen, Government Institute for Economic Research**

In considering the optimal degree of income tax progressivity, economists and policy-makers have long been concerned with the effect of taxation on the labour supply. The background to this study is that the income taxation system has changed dramatically ('supply-side' tax cuts in the 1980s) in many western industrialized countries in recent years (see e. g. Atkinson, EER, 1990). The features of these tax reforms were almost identical in different countries. There are at least three features which are common to all these tax reforms:

- 1) cutting marginal tax rates,
- 2) simplifying tax deduction systems,
- 3) broadening the tax base.

For example, the tax reform act in the United States in 1986 replaced the previous 14 marginal tax rates with two marginal tax rates. There were 11 marginal tax rates in Finland from 1980 to 1988 (the highest was 51 %) and after the income tax reform in 1989 there were only 6 marginal tax rates (the highest in 1989 was 44 %).

These tax reforms have naturally encouraged economists to study the distributive and incentive effects of these reforms. The effect of taxation on the labour supply has been one of the most popular subjects of labour economics in recent years. Recently the effect of taxation on the labour supply has been studied for example in Germany, the United States, France, Great Britain, Italy, Norway, the Netherlands, Sweden and Finland. All these studies use individual-level data (micro data) and also use modern econometric techniques to take account of non-linear budget constraints faced by individuals.

This study contains theoretical and empirical parts. In the theoretical part the basic labour supply model, both without taxes and with linear (proportional) taxes, is examined. The model is then extended to take account of progressive income tax. Assuming that leisure time is a normal good we can predict changes in the labour supply when tax parameters are changed one at a time. Examples of tax parameters are lump-sum taxes, marginal tax rates, gross wages, exemption levels and tax brackets. From the basic labour supply theory we know that the substitution effect and income effect have opposite signs and we do not know which dominates. In the empirical part of the study we try to answer this problem.

Econometrically, there are many different ways to approach this problem. Because of progressive income tax, individuals have different levels of net wages (as many as there are marginal tax rates) and virtual incomes (incomes which are independent of the number of hours worked, e.g. dividends, interest. For more information see

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<sup>85</sup> The support of Yrjö Jahansson Foundation is gratefully acknowledged.

Hausman, Handbook of Public Econ. 1985). The older generation solution was to transform the non-linear (piecewise linear) budget constraint back to a linear one. This was done by linearizing the budget constraint faced by individuals given the observed working hours. After linearization the net wage and the virtual income which correspond to the linearized section were used as exogenous variables. This approach has two defects. The first is that the exogenous variables (net wage and virtual income) are also endogenous, i.e. the result of an individual's choice. In other words, the error term of the model and the exogenous variables are correlated. The other problem is that one assumes that the observed labour supply and the desired labour supply are in the same segment, but that is not necessarily true.

In this study we follow the Hausman-Blomquist approach (see Hausman, JPE, 1980 and Blomquist, JPE, 1983.) This method allows the actual and the desired labour supply to deviate and so we have to take the whole budget constraint into account when estimating the labour supply function. For this estimation method we first need to construct the search algorithm which finds the optimal labour supply. For an example of how this is done see Hausman (Labor supply, The Brookings Institution. 1981) or Ilmakunnas (Labor Inst. for Economic Research, Discussion Papers 113. 1992). We estimate two different kinds of models. In the first (the fixed preference model), we assume that individuals with observed (measured) characteristics and the same budget constraint will make identical choices. In other words, the error term of the model represents the optimization error (individuals are not always able to choose optimal working hours). The second model (containing two additional random terms) tries to capture the unobserved heterogeneity of the preferences. In other words, we try in this model to capture the possibility that individuals with the same observed characteristics and the same budget constraint can make different choices. We assume that the random variable which takes the unobserved heterogeneity is normally distributed. We also assume a linear labour supply function. For the technical details see e. g. Ilmakunnas (1992).

The data used in this study is from the 1989 Labour Force Survey. The income data is from the Finnish tax authorities. The data is individual-level data and consists of information for 7825 individuals. In this study we concentrate on a subsample of working, married men aged 25-55 years. This group is the most active in the labour market. The labour force participation rate of this group in 1989 was about 90 %. In addition we have omitted farmers, the self-employed, the unemployed and students. The final sample size was 1080 individuals.

## Estimation Results

The main interest in this study is therefore to evaluate how changes in progressive income taxation affect the male labour supply. The two key hypotheses are:

1) that lowering marginal tax rates (which is same as raising net wages) increases the incentive to work,

2) raising exogeneous income (independent of the number of hours worked) lowers the incentive to work.

From table 1 we see that the estimates are consistent with the theory. The estimate of net wages is positive, meaning that compensated and uncompensated wage elasticities are also positive. This means that lowering marginal tax rates increases the labour supply. The estimate of virtual income is negative, meaning that raising exogenous incomes decreases the labour supply (in other words, the income effect is negative.) From table 1 we also see that the number of Slutsky violations is zero, meaning that the labour supply function use is consistent with the theory of utility maximization.

These results indicate that at maximum a 10 % increase in marginal net (hour)wages increases the labour supply by 2 %. If we translate this into working hours, it approximately corresponds to a 40 hour increase in the labour supply in one year. On the other hand, the results also indicate that for some people there seems to be no effect on the labour supply if we raise their marginal net wage. One must remember that we do not take into account demand-side restrictions in this study. One important point in these calculations is that we have calculated individual tax deductions from the data for everyone. All other similar studies have assumed the same fixed tax deductions for everyone.

The next step was to divide the data into two different groups. One group comprises white-collar workers (table 2) and the other blue-collar workers (table 3). From tables 2 and 3 we see that there is a substantial difference between these two groups. Wage and income elasticities are much higher in the blue-collar worker group. There are many different explanations as to why these groups respond differently to changes in taxation, but in this context we will not go into details about these explanations.

Finally we turn to the estimation results obtained in the case of the two additional random terms. The results are shown in table 4. Firstly, we see that the sizes of the parameters are almost the same as in table 1. Secondly, we see that the term  $\sigma_{\eta}$ , which captures the unobserved heterogeneity, is statistically significant. This means that variables which include individuals' observable characteristics (like age, number of children, work experiece and so on) do not take account of all the heterogeneity.

TABLE 1. FIXED PREFERENCE MODEL: estimate of labor supply function (individual tax deductions).

DEPENDENT VARIABLE: annual hours of work (/1000)			
$N = 1080$			
<i>VARIABLES</i>	<i>ESTIMATES</i>	<i>STAND.ERR</i> <sup>1</sup>	<i>t-VALUES</i> <sup>2</sup>
Const.	1.8117	0.0333	54.39
Net wage ( $\alpha$ ) <sup>3</sup>	0.0243	0.0099	2.43
Virtual income ( $\beta$ ) <sup>4</sup>	-0.0040	0.0011	-3.58
$\sigma_\varepsilon^2$	0.2218	0.0044	46.47
Ln L	93.57		
Uncompensated wage elasticity $E_w$	0.06		
Compensated wage elasticity $E_s$	0.08		
Total income elasticity $E_y$	-0.02		
Number of Slutsky violations	0		

1) Asymptotical standard errors.

2) Asymptotical t-values.

3) Hourly wage is measured in tens of FMK.

4) Virtual income is measured in ten thousands of FMK.

TABLE 2. FIXED PREFERENCE MODEL: estimate of labor supply function for a white-collar workers (individual tax deductions).

DEPENDENT VARIABLE: annual hours of work (/1000)

$N = 547$

<i>VARIABLES</i>	<i>ESTIMATES</i>	<i>STAND.ERR</i> <sup>1</sup>	<i>t-VALUES</i> <sup>2</sup>
Const	1.9063	0.0633	30.11
Net wage ( $\alpha$ ) <sup>3</sup>	0.0035	0.0165	0.21
Virtual income ( $\beta$ ) <sup>4</sup>	-0.0044	0.0033	-1.32
$\sigma_e^2$	0.2595	0.0078	33.05
Ln L	-38.24		
Uncompensated wage elasticity $E_w$	0.01		
Compensated wage elasticity $E_s$	0.03		
Total income elasticity $E_y$	-0.02		
Number of Slutsky violations	0		

1) Asymptotical standard errors  
 2) Asymptotical t-values.  
 3) Hourly wage is measured in tens of FMK.  
 4) Virtual income is measured in ten thousands of FMK.

TABLE 3. FIXED PREFERENCE MODEL: estimate of labor subly function for blue-collar workers (individual tax deductions).

DEPENDENT VARIABLE: annual hours of work (/1000)			
$N = 533$			
VARIABLES	ESTIMATES	STAND.ERR <sup>1</sup>	t-VALUES <sup>2</sup>
Const.	1.8004	0.0539	33.38
Net wage ( $\alpha$ ) <sup>3</sup>	0.0345	0.0183	1.88
Virtual income ( $\beta$ ) <sup>4</sup>	-0.0086	0.0010	-8.62
$\sigma_\varepsilon^2$	0.1729	0.0052	32.67
Ln L	178.67		
Uncompensated wage elasticity $E_w$	0.08		
Compensated wage elasticity $E_s$	0.12		
Total income elasticity $E_y$	-0.04		
Number of Slutsky violations	0		

1) Asymptotical standard errors.  
 2) Asymptotical t-values.  
 3) Hourly wage is measured in tens of FMK.  
 4) Virtual income is measured in ten thousands of FMK.

TABLE 4. RANDOM PREFERENCE MODEL: estimate of labor supply function  
(individual tax deduction)

DEPENDENT VARIABLE: annual hours of work (/1000)			
$N = 1080$			
<i>VARIABLES</i>	<i>ESTIMATES</i>	<i>STAND.ERR</i> <sup>1</sup>	<i>t-VALUES</i> <sup>2</sup>
Const.	1.8025	0.0152	118.58
Net wage ( $\alpha$ ) <sup>3</sup>	0.0239	0.0065	3.64
Virtual income ( $\beta$ ) <sup>4</sup>	-0.0036	0.0012	-3.00
$\sigma_\epsilon^2$	0.1065	0.0042	25.35
$\sigma_\eta^2$	0.1105	0.0129	8.56
Ln L	189.12		
Uncompensated wage elasticity $E_w$	0.06		
Compensated wage elasticity $E_s$	0.08		
Total income elasticity $E_y$	-0.02		
Number of Slutsky violations	0		

1) Asymptotical standard errors.  
 2) Asymptotical t-values.  
 3) Hourly wage is measured in tens of FMK.  
 4) Virtual income is measured in ten thousands of FMK.

## **YOUTH UNEMPLOYMENT IN FINLAND**

**by M rjo Pyy, Government Institute for Economic Rese rch**

The purpose of this study is to examine what factors affect the intensity of obtaining employment and how this intensity or rate varies with the length of an unemployment spell. In other words, the study tries to find an explanation for the variation in the length of unemployment spells: what kind of background causes long unemployment spells and low employment intensity and what types of people have no difficulties finding jobs. The study concentrates on young Finnish job seekers who are under 30 years old when becoming unemployed.

These problems can be tackled with the methods of survival analysis (in economics survival analysis is frequently referred to as duration analysis). In survival analysis, the interest centres on a group or groups of individuals for each of whom there is a defined event, often called failure, occurring after a length of time called the failure time (Cox & Oakes, 1984). When studying employment intensities the event of interest is employment and the 'failure time' is the duration of the unemployment spell.

A common way of specifying employment intensity models in economics has been to assume that the durations of unemployment spells are Weibull-distributed. Models in which an assumption about the distribution of durations has to be made are called fully parametric models. If there is no prior information about the distribution of the unemployment spells, a more robust approach is to specify a partially parametric model in which no assumptions about the distribution of durations have to be made. With a partially parametric model it is possible to examine whether some known distribution approximates well enough the distribution of the durations. In this study employment intensity has been modelled with Cox's proportional hazard model, which is a partially parametric model.

'Employment' has been determined as employment in an open labour market, either with the help of the employment service or by oneself. According to the law prevailing in 1991 the government had to provide work for those who had been unemployed for one year and for the under 20 year-olds for those who had been unemployed for three months. Obtaining employment with the help of these kinds of employment programmes differs fundamentally from previously determined methods of employment and I feel it is not reasonable to treat these two kinds of employment alike. Therefore I have concentrated on explaining the intensity of employment in open labour markets.

### **The data**

The sample is a systematic sample from the unemployment register of the Ministry of Labour. The sample consists of young people (under 30 years) who became

unemployed in 1991 and who registered with the employment service. The sample was taken from the flow into unemployment. Individuals were monitored until the end of their unemployment spell but at most until the beginning of March, 1993. The raw data consists of 1794 observations. Thirty observations were removed from the data because of erroneous or missing information so the final data consists of 1764 observations.

Young people's unemployment spells are commonly rather short and this shows in the sample, too: 50 % of the spells last at most 12 weeks. Only three individuals with a spell lasting longer than one year obtain employment in an open labour market: most of the long-term unemployed gain employment with the help of employment programmes. Therefore, there is not enough information to study intensities of employment in open labour markets for durations longer than one year and spells lasting longer than one year are censored at 365 days. The information contained in censored spells is that the spell has lasted at least as long as is observed. In other words, we know that spells censored at 365 days last at least 365 days. Individuals who withdraw from the study before the end of the period of observation are also censored observations. In the competing risks framework, which takes into account the different ways of terminating an unemployment spell, spells terminated in other ways than employment are treated as censored. Of 1764 spells, 671 are terminated by employment in an open labour market and 1093 (62 %) are terminated in other ways or are censored. There are 562 (32 %) censored observations, of which 168 are censored because of the ending of the period of observation and 394 because of withdrawal from the study.

## Estimation results

The estimated 'final' model, which is based on several preliminary estimations, can be found in appendix 1. Non-significant (at the 5 % level) variables were removed from the model, unless of particular interest. The data was stratified into three groups according to status prior to unemployment, because some variables describing status did not affect the hazard (the intensity of employment) proportionally. The first group consists of persons whose previous status was work, education or military service, the second consists of persons with a problematic background or coming from employment training and the third group consists of persons coming from home or having had other activities before unemployment (the division into three strata was based on some diagnostic plots and estimated models which are not elaborated here for reasons of space). Baseline hazards were estimated separately for the different strata. This allows the stratifying variable to affect the hazard non-proportionally.

Estimations show that age does not have any effect on employment intensity. This is probably because the data largely consists of young people anyway; there is not enough variation in the ages of individuals. Nor do variables describing work experience, working hour preferences or job seeking area or these indicating citizenship or mother tongue have any influence on employment intensity. Gender has

a very significant effect on employment probability (dummy variable woman): women's employment intensity is 1.5-fold compared to men (column risk ratio).

Background variables seem to be rather important in determining young people's employment intensity. The UV ratio has a very significant effect on employment; the more jobseekers there are for each job, the less chance there is of obtaining employment. Dummy variables indicating the month when unemployment began were also tried in the estimations. Individuals who become unemployed in January seem to become re-employed more easily than others. This may be due to the rapid slowdown of the economy in 1991: in the beginning of the year employers had not begun to realize the slowdown that was taking place and new employees were being hired as before. On the other hand, many vocational and middle level schools terminate in December in Finland and graduates from these schools enter the labour market in the beginning of the year. So young jobseekers entering the labour market in January are probably better educated on average than those entering at other times (most of the individuals in the sample have only elementary school or high school education). The January variable may thus reflect (in the same way as the variables *himiddle* and *age2master*) the effect of differences in the level of education on employment intensity.

There seems to be interaction between sex and membership of a trade union fund: membership raises men's hazard of employment at the 7 % level (*mmember* variable) but has no effect on women (the *fmember* variable was removed from the final model because of its non-significance). Physical or mental problems also have a stronger negative effect on men's hazard of employment (*mdisabled* and *fdisabled* variables). Interactions between sex and age and sex and work experience were also tested for in the estimations. In the same way as the principal effects of the variables, the interaction terms did not turn out to be significant.

High school and middle-level schooling (10-14 years of studies) were found to raise employment intensity significantly compared to comprehensive schooling. Having a university degree did not effect employment intensity compared to having a comprehensive school education. This result seems somewhat odd and may reflect the structure of labour demand rather than the effect of having a university degree. This topic needs some further work. There was an interaction between the variables *agegroup* and *master*: for 20-24 year-old young people, a master's or higher university degree raises the employment intensity strongly (*age2master* variable), while for 25-29 year-olds it has no effect. Young people under 20 years do not usually hold university degrees. Since there were only 25 people with a master's or higher university degree, this result mainly reflects the sample and may not be generalized for young Finnish jobseekers in general, I feel. The classification of the schooling variables has been made coarser in the final model so that the variable *himiddle* describes the effect of having a high school or middle-level education and *lobachelor* describes the effect of having 13-15 years of studies. Having a nursing or public health education raises the hazard of employment significantly (variable *health*). I believe this reflects the labour demand situation in the beginning of the economic

slowdown: the effects of the slowdown showed more rapidly in the private sector than in the public sector. Labour markets are differentiated according to sex and the majority of employees in public health are women. The result showing that women gain employment more easily than men may, like the variables describing types of schooling, reflect the labour demand situation in the period of observation: if typical women's jobs were abundant, it is natural that women should gain employment more easily than men. Having a commercial or technical schooling lowers the hazard significantly. The regression coefficients of variables indicating a commercial or technical education differ only in the second decimal, therefore these variables have been combined in the final model (variable *tradtechn*).

The three estimated, smoothed baseline hazards are given in appendix 2. There seems to be negative duration dependence; the hazard of employment drops with the duration of unemployment. The hazard of those coming from work, army or school (solid line) is almost always higher than the hazards of the other groups. The fact that there is a spike in the hazard of those coming from home or having had other activities before unemployment at 300 days is probably due to the small risk sets at long durations and has no real informative value.

## Conclusions

In this study factors affecting the intensity of employment of young Finnish jobseekers were examined using Cox's semi-parametric proportional hazard model. Since the distribution of durations does not need to be specified, Cox's model is a robust way of modelling employment intensities. The diagnostic plots (which were not commented on in this paper) showed that the common Weibull specification would probably have been a reasonable approximation of the distribution of unemployment spells in this sample. On the other hand, not all the variables affected the hazard proportionately. In this case Cox's model shows its flexibility again: it is possible to stratify the data according to variable whose effect on the hazard is non-proportional and estimate baseline hazards separately for the different strata. This allows the stratifying variable to affect the hazard non-proportionally.

According to the estimated model, labour demand factors seem to be quite important in determining employment intensity (variables *UVratio*, *health* and potentially *woman* and *age2master*). This is a plausible result when one bears in mind the period of observation, which is the beginning of an economic slowdown. The demand side calls for further work and more careful attention. It appeared that membership of a trade union fund and physical or mental problems affected the hazard of employment differently for women and men. Membership raised men's hazard of employment but had no effect in the case of women. Physical or mental problems lowered men's hazard more so than women's. Schooling raises employment intensity significantly.

## Appendix 1.

## Summary of the Number of Event and Censored Values

Stratum	THAKUED	Total	Event	Censored	Percent Censored
1	1	1477	599	878	59.44
2	2	211	52	159	75.36
3	3	76	20	56	73.68
-----					
Total		1764	671	1093	61.96

1= work, army, school

2= home, other activities

3= employment training, problematic background

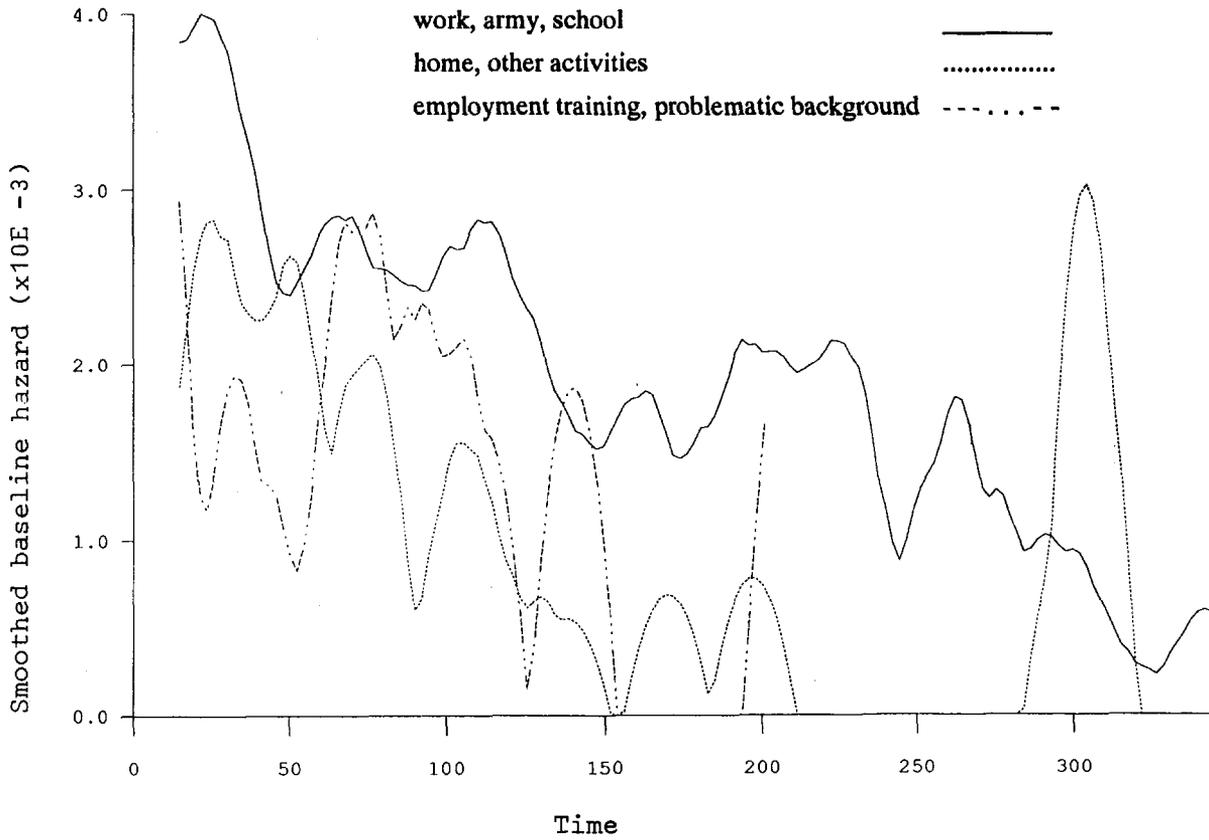
## Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L Score	7515.365	7393.354	122.011 with 11 DF (p=0.0001)
Wald	.	.	131.289 with 11 DF (p=0.0001)
			122.996 with 11 DF (p=0.0001)

## Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Risk Ratio
WOMAN	1	0.428881	0.09253	21.48596	0.0001	1.536
MMEMBER	1	0.207499	0.11818	3.08282	0.0791	1.231
MDISABLED	1	-1.693499	0.71088	5.67507	0.0172	0.184
FDISABLED	1	-0.608939	0.33898	3.22705	0.0724	0.544
HIMIDDLE	1	0.476150	0.10003	22.65988	0.0001	1.610
LOBACHELOR	1	0.688443	0.20794	10.96172	0.0009	1.991
AGE2MASTER	1	1.626818	0.72692	5.00842	0.0252	5.088
TRADTECHN	1	-0.322091	0.09732	10.95442	0.0009	0.725
HEALTH	1	0.633846	0.17545	13.05215	0.0003	1.885
UVRATIO	1	-0.007625	0.00224	11.61444	0.0007	0.992
JANUARY	1	0.406809	0.11526	12.45824	0.0004	1.502

## Appendix 2. Estimated hazard functions



## PROGRAM

### Symposium on Unemployment

Place: Paasitorni, Paasivuorenkatu 5, rooms 303 - 304

Time: 25 and 26 November, 1993

25 November

8.30 - 9.00 Coffee

Session 1 Chair: Reino Hjerppe (Government Institute for Economic Research)

9.00 - 10.00 Unemployment in the OECD economies - Seppo Leppänen  
(Government Institute for Economic Research)  
Comment: Eero Polus (Ministry of Labour)

10.00 - 11.00 Labour Market Flows in Economies in Transition: The Case of  
Poland - Marek Góra (Warsaw School of Economics)  
Comment: Merja Tekoniemi (Bank of Finland)

11.00 - 12.00 Mass Unemployment In Finland: - Causes, Special Features and  
Remedy - Tuire Santamäki-Vuori (Labour Institute for Economic  
Research)

12.00 - 13.00 Lunch

Session 2 Chair: Heikki A. Loikkanen (Government Institute for Economic  
Research)

13.00 - 14.00 Persistent Unemployment: Aspects of the Danish Experience - Peder  
J. Pedersen (University of Århus)  
Comment: Reija Lilja (Helsinki School of Economics)

14.00 - 15.00 Long-term Unemployment in Finland: A Macroeconomic View -  
Jaakko Pehkonen (University of Jyväskylä)  
Comment: Pasi Holm (University of Helsinki)

15.00 - 16.00 Unemployment and Health: Causes and Consequences - Eero  
Lahelma (University of Helsinki)  
Comment: Osmo Kontula (University of Helsinki)

26 November

- Session 3**      **Chair: Seppo Leppänen (Government Institute for Economic Research)**
- 10.00 - 11.00**    **Unemployment and the Wage Structure - Tor Eriksson (Government Institute for Economic Research)**  
**Comment: Juhana Vartiainen (Labour Institute for Economic Research)**
- 11.00 - 12.00**    **Human Capital and Industry Wage Differentials in Finland - Rita Asplund (The Research Institute of the Finnish Economy)**  
**Comment: Jari Vainionmäki (University of Tampere)**
- 12.00 - 13.00**    **Lunch**
- Session 4**      **Chair: Tor Eriksson (Government Institute for Economic Research)**
- 13.00 - 16.00**    **Ongoing Research on Unemployment at Government Institute for Economic Research**  
**Rising Unemployment - a General Feature of Western Europe? - Antti Romppanen**  
**Industry Wage Differences in Finland, 1989 - Pekka Tossavainen**  
**On Vacancies - Juha Rantala**  
**The Effect of Progressive Income Taxation on the Supply of Male Labour in Finland - Mika Kuismanen**  
**Youth Unemployment in Finland - Marjo Pyy**

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*n Finland, it is forecasted that mass unemployment will persist for the whole of the 1990s. How can unemployment be brought down and the trend towards long-term unemployment be broken? Are flexibility and structural reforms the right answers or what macroeconomic policy measures are necessary? What is the role of targetted policy measures, education and training in the fight against unemployment? What are the health effects of unemployment? What of the wage dispersion in the Finnish labour market? These issues were discussed at the symposium on unemployment organized by VATT on 25 and 26 November 1993. This book contains the material presented at that symposium.*



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