

Dear Reader,

The Finnish Parliament's Committee for the Future has always seen work as one of the most important factors defining the future. For that reason the theme has been teased out in several ways and from a variety of starting points. The last occasion on which the Committee brought it up in the form of a topical debate in a plenary session of Parliament was in March 2000. It did so on its own initiative.

This publication contains:

- 1) the Committee's discussion document *Ten Pain Spots in the Future of Work*, which was the subject of a topical debate in a plenary session of Parliament on 15.3.2000;
- 2) the long-term study *Globalisation and the end of work? The economy and employment up to 2030*. The Committee commissioned the study, authored by Seija Ilmakunnas, Jaakko Kiander, Pekka Parkkinen and Antti Romppanen, from the Government Institute for Economic Research Centre (VATT) to serve as background material for the debate in plenary session;
- 3) positions adopted by the Committee in relation to Parliament's and its own work on the theme of the future, i.e. a submission on the Government's draft budget for 2000, a submission on the Government's report on the EU Commission's communication announcing the initiative "eEurope. An Information Society for All", a submission on the Government's report on the measures it took in 1999 and a memorandum to the XI EUREKA Interparliamentary Conference.

The Committee is continuing to deal with the theme by drafting, with the assistance of Professor Eero Paloheimo, three scenarios for the future of work. These could be summed up in simplified terms as: a) a positive, innovative development, b) a catastrophe and, as an intermediate form, c) a fairly balanced development.

A number of difficult matters have come up for deliberation in the work of the Committee to date, but the results achieved in relation to them have not been to the Committee's own satisfaction. One example with a close bearing on the future of work is the discourse that has gotten under way in Europe on the theme of a new concept of equality, one that challenges the traditional Nordic perception.

In his research concerning the so-called Third Way, the British sociologist Anthony Giddens was perhaps the first in his field to postulate that what matters most in good policymaking is not, after all, equality, but rather preventing poverty.

At the same time the new economy - the digital one - has been highlighting the problems of rich and poor and income differences in a completely new way. The options and other - to ordinary people incomprehensibly large - remuneration that executives of companies which operate globally receive are determined in accordance with the going international rates, global competition and established business practice. The same applies to many other groups of workers. What this means is that in a global economy it is rather difficult to apply the same criteria to the wages and other conditions of employees of large Finnish export companies operating on the international scene as to those enjoyed by employees of small firms serving the domestic market mainly or exclusively.

8.3.2000

Topical discussion at 14.00 on 15.3.2000**TEN PAIN SPOTS IN THE FUTURE OF WORK****Contents**

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New report on the future in the pipeline

TEN PAIN SPOTS IN THE FUTURE OF WORK

The ongoing process of radical transformation in technology and the economy is changing working life and society. Old jobs are disappearing or at least changing in character. New job tasks are being created at the same time. All of this is causing problems of adjustment for the individual and society, but also presenting new opportunities. What is the future of work?

In its 1997 report on the international environment in which Finland has to live (TuVM 1/1997), Parliament's Committee for the Future named four permeating success factors: 1) prudently influencing globalisation, 2) making full use of knowledge and technology, 3) humanity and innovation, and 4) governance of matters and life. In order to add profundity to its views, the Committee concentrated its efforts in autumn 1999 on assessing work and changes in the way it is done.

In its efforts to assess the development likely to occur in the near future, the Committee has adopted the so-called scenario method, which is much used in conjunction with futures studies. Unlike this discussion paper, the scenarios include the possibility of catastrophe as one alternative. The intention is that the result of the scenario work will be placed at the disposal of Parliament next autumn.

Some of the results of the Committee's hearings of experts were included in the booklet *Työn tulevaisuus* ("The Future of Work") published in autumn 1999 in collaboration with the Finland Futures Research Centre/ Akademia Futures Research Network.

After an extended hiatus and on a commission from the Committee, the State Economic Research Centre (VATT) has produced a long-term economic prognosis. This will prove useful also in a broader context as an additional means of meeting a need to restructure the system within which budgets and economic forecasts are drafted in Parliament and is likely to produce elements that can be used for such purposes as restructuring framework budgeting in the direction that Parliament would like. The essential thing here is that VATT did not confine itself to making an economic prognosis based on numerical calculations, but also conducted a broad examination of alternative lines of development in both the economy and wellbeing in the beginning of the 21st century.

To prime the discussion the Committee drafted this document and identified 10 "pain spots" in the future of work which it is important to deliberate from the perspective of Finland's future. The Committee does not present patent solutions. Assessment and evaluation in many forms, studies and innovations will be needed in order to find good solutions. The Committee hopes that highlighting matters will lead to a useful discourse and thereby help the Finns and Finland achieve a good future.

1. How can growth of intellectual capital and in the economy be safeguarded?

Skill and ability - competence - have become a primary source of prosperity. Therefore the basic task of training and research establishments, but also of companies and national economies, is to ensure a supply of competent people. One of the leaders of the modern information economy pithily expressed his biggest problem as being that when workers went home in the evening, all of the company's assets walked out the door. Then he lay awake nights fervently hoping that they would also walk back the following morning (CEO Charles Wang, Computer Associates 1999).

Economic growth creates wealth. In the 21st century it will be brought about through skill- and knowledge-based work more clearly than has been the case in the past. Human capital is becoming more important than traditional money capital as a source of economic growth. How can competence be ensured in the future? Individuals bear responsibility for their own competence. Companies and other bodies are responsible for ensuring that their organisations function effectively and fruitfully as well as for developing their workers' abilities and skills in order to promote this effectiveness. The State has its responsibility for training the competent persons that the knowledge-intensive economy of the future will demand as well as for producing basic knowledge and research results. It is in this way that the foundation of a Nordic society built around social equality will be strengthened.

In a society founded on knowledge and ability, individuals bear greater responsibility for their own life, livelihood and choices than was the case in the past, but the role of the State as a provider of security is not changing in any essential respect. Even when the economy is doing well and the employment situation is good, not all are able to make it on their own. Preparing for a future in which the role of the State is increasingly often confined to putting in place the prerequisites for the creation of ability will be a new and difficult feature of the Nordic welfare model.

Finnish appreciate schooling and education. That is because for them education has long been the most important channel for upward social mobility. From the perspective of society, education has strengthened the national consensus. It is the foundation of motivation to work and engage in enterprise and thereby a guarantee of Finnish prosperity.

Everyone needs a good basic education. In a knowledge society the human and natural sciences and technical expertise are an important part of general education. In addition to that, more and more job tasks require education founded on mathematics and the natural sciences. What must be done when only 12,000 pupils are taking the expanded mathematics option in the senior secondary level, but the number of starting jobs that require it in the natural sciences, technology and medical sectors is 20,000? The importance of social skills is likewise growing. People must have a good command of English, which is the *lingua franca* of business, technology and international contacts. A better knowledge of cultures and understanding of diversity than earlier is likewise demanded of us.

The number of experts and executive tasks in various of society's functions in the sectors of production, finance and administration is growing rapidly. Universities and other institutions of higher learning must train the people needed to do this work. High-quality teaching is founded on scientific research and imparts knowledge that will remain useful in the future. The standard of these institutions and the resources available to them help determine how competent, able and creative will be the people that society has at its disposal. Polytechnics aim to provide training that gives people the ability to perform the occupational tasks of the moment and constantly develop them further. Is the standard of instruction

at universities and polytechnics sufficiently high? Are their basic resources up to the demanding tasks of the future?

Labour shortages threaten rapidly-growing sectors. They can considerably slow down economic growth and thereby impede progress towards improving employment. Universities and other institutions of higher learning have increased their intakes of students seeking a future in these fields, but a dearth of resources places constraints on the quality of teaching and research. Compromising on quality is especially dangerous in sectors in which Finland is one of the world leaders in development. The result before long will be the loss of both leadership status and markets. When the State authorities pursue a policy of scarcity in allocating resources for basic education and research, are they taking too great a risk with regard to ensuring future growth?

Part of the explanation for people's unwillingness to change and for slow labour mobility is structural. It is difficult to give up the quality of life that one has achieved. In the Finnish welfare model families must make such choices as, for example, whether to live in a 400,000-markka (€67,275) single-family house on a lakeshore in the provinces or in an equally expensive one-room studio apartment in the Kallio district of Helsinki.

A good basic education is not enough. The people of ability who will succeed in the 21st century will have to be able to absorb new knowledge and very quickly acquire the skills that changing work patterns call for. There is a need for both competence and creativity and vision. People must be able to learn and work together with others, because many tasks are performed as group work in which all have their own share to contribute.

Deregulation of markets is a common development trend, and one that has also caused a lot of controversy. It imposes bigger demands on people and can also change the relationship between the individual and the State. In our egalitarian Nordic society, basic services like health care and day nurseries are among the prerequisites for people being able to work and learn.

The role played by the State and politics in promoting economic growth has changed. Public power and regulation are needed, but it has also been important to open up competition.

Telecommunications is a sector that was thrown open to competition in Finland quite early on. In the development of this sector one can discern various phases in which the State has been active and others in which it has withdrawn to the wings. Finland, i.e. ultimately the Government, was one of the first countries in Europe to begin deregulating the telecoms market (in the late 1980s) and through legislation enacted in 1997 further encouraged competition in the sector. The record growth that Finland has enjoyed in telecoms is largely attributable also to early public investment in the network and infrastructure. There has been the freedom and a clear incentive to build networks, raise finance and continually adopt the latest technology. The transformation at the end of the 20th century of the State-owned post and telegraphs administration into the rapidly-growing company Sonera is an impressive success story. What will be the function of the State in the telecoms sector of the future, for example in ensuring that the network is of a high standard and charges consistent throughout the country, and what will be its role in other sectors?

The US company International Data Corporation drafts an Information Society Index (ISI), which incorporates information on more than 20 quantitatively-monitorable sub-areas. This index shows that one year ago Finland's information society environment was the second most highly developed in the world, surpassed only by the USA. The survey covers 55 countries. According to a comparative study conducted in early 2000, Sweden had risen to first place, the USA was second and Finland had fallen back to third. What has Sweden, a country that can easily be compared to our own, done better than us?

How have the various actors concentrated their efforts? An interesting feature from the perspective of practising politics is that in Sweden tax relief for workers and employees has enabled the country to achieve the world's highest penetration of home computers. It is claimed that connecting to the Internet in Stockholm is 40 times faster and costs only a quarter or so compared with Helsinki. Now the Swedish industry ministry is planning to build a nationwide broadband network.

2. How can the transformation of working life in the digital economy and competence society be managed: could life-span thinking be the key to life management?

The rapid development of technology has brought about a radical transformation of working life. Routine tasks in manufacturing and services have disappeared and caused unemployment. In Finland most of the jobs in agriculture and forestry have likewise disappeared and the resultant unemployment has driven people out areas of the country that were sparsely-populated anyway. New employment has been created mainly in the IT sector and new services, but those whose jobs in declining sectors have disappeared often lack the skills to take up the new ones on offer.

Probably the place where this transition has been experienced most clearly is the thriving Oulu region. 10,000 new jobs have been created in the IT sector there in the past ten years, but 20,000 ordinary ones have disappeared in the same period.

Jobs-for-life have become rare. It has even been forecast that occupations and careers will be relegated to history as the knowledge society advances. Will development continue in such a way that all jobs and performances will be bought and sold in open, often global labour markets?

The pace of technological evolution in the 1990s demonstrated how essential it is to manage change both on the level of the economy, companies and communities and in the life of the individual. People must be provided with an opportunity for constant, lifelong learning.

The goal of constant learning has been clear and commonly accepted for years, but how the matter is to be arranged and financed remains unresolved. Can the tripartite model that has been proving its worth in Finnish working life for decades, one in which matters are agreed and costs shared between the State, the employer and the worker, be adapted for use in this matter so important to society as a whole?

Information and a capacity to manage it are an important prerequisite for being able to manage change. The rapid pace at which new information replaces old is a fact that must be responded to. It has been estimated that information in the form of data, i.e. as unprocessed material, is doubling in volume every

five years at present, but in the year 2020 it will be doubling every two months. We shall have to screen this raw data to find what is correct and useful to us. Data will have to be transformed into knowledge, the views and abilities that the individual and the community embrace. It must be at the disposal of all competent persons. Managing information is a more demanding task than it has ever been in the past.

Life-span thinking lends itself as a model for work that demands constant renewal. It can support people when they participate suitably in each stage of their life. Could not life-span thinking, according to which work and study take place in parallel and partly alternate, give people stability and certainty, provided it is developed to the point where it functions well? Could life-span thinking help solve the long-term financing problem that a decline in the number of young workers and ageing of the population are causing the public economy?

The Finnish "alternation leave" scheme (in which a person can take up to a year's sabbatical at reduced pay to allow an unemployed person to be taken on for the duration) was created to make it easier to combine work and study. Only around 10,000 people availed themselves of the scheme in 1999 and around 32,000 since it was introduced in 1996. The numbers availing themselves of other active measures (placement work, labour-market training, work training for the labour market, and so on) have likewise declined.

The training guarantee scheme, the purpose of which was to get tens of thousands of people into new jobs while preserving their social security, did not lead to the desired result. It was estimated that 60,000 in 1997, 120,000 in 1998 and 105,000 in 1999 would meet the criteria for this scheme. Of these, about 8,000 in 1997, 6,600 in 1998 and 11,000 in 1999 were expected to avail themselves of the opportunity. In actual fact, the number in each year was only about one thousand. Are the reasons for the low level of interest in schemes created specifically to reform working life economic or rooted in attitudes, or is the explanation something more complex?

3. Who will take care of essential work for the common good if the labour shortage worsens?

The State must make its proper contribution to ensuring everyday functions and services for people are taken care of well. Should not wages, taxation and social security be harmonised in such a way that people can be found to do these essential jobs? Or, especially if a possible labour shortage continues and worsens, should the foreign component of the labour force be increased? Must we prepare ourselves for a situation in which people can not be found for all essential jobs?

The proportion of pensioners in the population will begin growing strongly on the European level from 2007 onwards (IPTS Employment Map), and from 2005 in the case of Finland. However, that does not necessarily mean that all unemployment will just vanish. In Finland, more than a half of workers aged over 50 have received training that does not equip them for the information society or knowledge work. Yet these people still have 10 - 15 years of work left in them.

With the 21st century just beginning, the possibility of boosting employment by reducing working time is being considered in several European countries. France has chosen the option of shortening the weekly working time and has gone over to a 35-hour week. A lowering of the pension age to 60 has been proposed in Germany, meaning that working time would be reduced over a person's whole life. By contrast, an alternative discussed in several countries is that people would be able to do work suiting

their age, fitness and life circumstances for as long as they themselves wanted. Should not the point of departure also more broadly be that the task matters more than career and occupation? People have certain tasks. When they are left behind by the latest technology or grow old, they can do either the same or new jobs, but more slowly. Could job tasks be arranged on a part-time or other basis in such a way that a different level of ability or performance time could be taken into account without undue additional costs being incurred?

To encourage people to work and ensure that valuable experience is passed on it would be advisable to discuss means of enabling pensioners to continue to lead an active life and also work if they want to. How can we create a positive attitude to work, which in this context does not narrowly mean a permanent employment relationship? Should the tax system be reformed in a way that distinguishes between earnings made while on retirement and the pension that a person has earned during his or her active work period?

A well-functioning society, in which mutually-complementary public- and private-sector services have their important respective roles, will make Finland an enticing location in international competition to attract companies. Without good administration and basic public services there will not be a good economy, either.

With economic growth remaining strong, the State must prepare to ensure that competent people are found to fill public-sector jobs. Competition for competent people is tough.

4. Will transformation of working life mean that difficult and complex choices have to be made in economic and social policy?

Managing change is all about choices in economic and social policy. With the advance of globalisation competition between two models - the Anglo-American and the Central and Northern European - has intensified. There are many models of economic- and social-policy in Europe, but certain general developmental differences compared with the USA can be seen in the Western and Northern European model.

Based on a rough calculation, labour costs in Western Europe have risen 70% in 30 years, but the number of jobs has increased by only a tenth. A large proportion of these jobs have been created in the public sector. It is estimated that wages have increased by a quarter in the USA in the same period and the number of jobs by 70%. The unemployment rate was more than twice as high in the USA in the early 1970s, but the situation was the reverse in 1998. The average rate in the EU countries was 11% in that year, but under 5% in the USA. Whereas the USA has been able to halve its unemployment rate since the second oil crisis in the latter half of the 1980s, unemployment has persisted at a high level in the EU.

The difference between the EU and the USA is particularly striking in employment. In the USA between the mid-1970s and the mid-1990s, a reduction in the level of joblessness was paralleled by a 10% rise in the rate of employment. The rate of employment in the EU fell by over 5 percentage points in the same period. The rate of employment (proportion of the population aged 15 - 64 in jobs) in the

EU was under 60%, compared with nearly 75% in the USA. Thus the difference between the two regions grew by 15 percentage points in 20 years. In 1999 the rate of employment was 77% in the USA and slightly over 60% in the EU. The figure in Finland is 66% and the aim is to increase it to 70%.

The advantage of the Anglo-American model with the theme of work in mind is that it is based on the premise that everyone should work and be of use. Never before have so many jobs been on offer in the USA as there are now. At the same time, however, it is being argued that over half of the labour force have suffered a fall in wages and many people have to hold down several jobs to raise their level of income. New forms of poverty have come into being and differences between standards of living have grown. The strength of the Nordic model lies in that it provides all people with certain prerequisites for a good life and the disadvantaged are taken care of. The drawback is a high level of taxation, which can lessen motivation to work.

Finland has made her choice independently and on the basis of the principles enshrined in her own welfare model. Looking at the matter from the perspective of a good working life in the future, would it not be better for Finland and her people if we were able to combine the best components of both models from now on?

Solutions and choices concerning the economy and society affect our wellbeing more broadly than they used to. A new feature that must be taken into consideration is the perceptions of international company owners and other actors of what constitutes a good corporate environment and the criteria they adopt in deciding where it is a good idea to invest.

The new economy has highlighted the problems of rich and poor and income differences in a completely new way. The options and other remuneration and benefits that executives of globally-operating companies enjoy, and which seem incomprehensibly high to ordinary people, are determined according to the international level, global competition and business practice. The same applies to many other groups of workers, especially if they possess special skills that are in demand. The idea of option is that also representatives of intellectual capital receive their share of the fruits of success. Until now, only the owners have benefited when a company's value increases. Is it possible in the global digital economy to apply the same criteria to the wages and other benefits received by employees of large Finnish export companies that operate globally, and whose owners are mainly foreign, and those of ordinary small Finnish companies?

The intelligence-based competence that is driving the Internet economy forward is a highly personal advantage and characteristic. It is not material. Distributing competence-based wealth in the name of equality could run into problems. Is there a danger that people of ability will leave the country if efforts at wealth levelling invoking the principles of equality and solidarity-based wage policies are taken too far?

5. Where will innovations and good new products and services meeting the needs of the knowledge economy come from and how will this happen?

Finland was one of the poorest countries in Europe a century ago, but today is one of our continent's leaders in developing and applying new technology. Growth in the Finnish economy has outstripped the OECD average in 1995 - 2000. The factors on which Finnish competitiveness is based are knowledge

and competence, in addition to effective administration, social cohesion and an unpolluted environment.

The key to success in the future will continue to lie in new knowledge-based products and services. Information technology and knowledge must be used to modernise traditional material production at faster than the current pace. What will the new products be, how will the forest, telecoms, metal and welfare clusters be modernised, and what can be achieved in fields like biotechnology? What, at its best, could be Finland's share of for example tourism, which is now the fastest-growing sector of the world economy?

The electrical and electronics industry is a good example of the opportunities that the knowledge society and globalisation provide in the development of innovations. Output in the sector has been growing at annual rates in the tens of percent and has caught up with forest products by passing the 100-billion-markka (€16.8-billion) mark. Its growth prospects remain excellent. Other sectors in which good opportunities are recognised include software. The Technology Development Centre (TEKES) has estimated that the software sector's turnover could grow from the present slightly over 10 billion markkas to 70 billion (€11.77 billion) by 2010. It is estimated that this could generate some 60,000 new jobs.

Biotechnology is very probably one of the growth sectors of the future. Its powerful arrival on the scene demands a lot also of politicians, who will have to prepare to address new kinds of problems.

One example of the importance of the ethical problems that the knowledge society and biotechnology is creating and of the urgency of finding solutions to them was the announcement in late 1999 by an American research team led by Professor J. Craig Venter that they were ready to create an entirely new organism in the laboratory. According to the research team and *Science* magazine, a living organism needs only 300 genes – far fewer than the around 80,000 that every human cell contains. The researchers promised that they would not go ahead and create the new organism before the import of their action had been pondered. In January 2000 one of *Homo sapien's* close relations, an ape, was cloned in the USA. Shouldn't legislatures make their due contributions to the debate on humanity-related values and ethics in good time, i.e. before rather than after the event?

The contents industry could be an important new sector in the future. Is there a need for a change of attitude in cultural circles so that cultural products can be commercialised? Is it not time to start talking of a culture industry?

Small technology companies are highly innovative. Vigorous small companies are emerging in several countries. The expression "hidden champions" applies to aggressive small companies, which strive resolutely and rapidly to seize complete control of the global markets for their respective, precisely-delineated products.

Success in the future presupposes an abundance of innovations. These will emerge from basic and applied research, the results of which are put to use in product development. In Finland, the State and companies have since the mid-1980s been constantly increasing their spending on research and product development. Thanks to this, advanced technology's share of exports grew from 6 to 20% in the 1990s, a decade that saw a doubling of exports overall.

Innovations of a high standard can come about only through basic and applied research of the very highest quality and superbly-trained researchers. Basic research and training researchers are tasks for universities and other institutions of higher learning. Demands are growing and research requires increasingly expensive equipment. Sweden has been renowned for its top-quality products for a very long time. A couple of years ago the State and companies there got together to increase R&D funding to 3.8 per cent of GDP. The percentage in Finland was boosted to 3.1 per cent, but now the State has deemed it appropriate to terminate growth in its own share. Can Finland afford to rest when for example the electronics industry has in recent years contributed a half of overall growth in national income, and Sweden is a competitor in the same sector?

Competitiveness promotes GDP growth and is a prerequisite for success in international competition. People as individuals are in the background of also this competition factor. Writing in *The Atlantic Monthly* in June 1999, Professor Lester C. Thurow, who studies the structures of the economy, takes the view that a suitable mix of chaos and order is required if knowledge is to be exploited to the full.

In the new kind of knowledge economy, the attitude to knowledge is different from what it was earlier. Knowledge is capital, which need not and must not be saved. That is because it accumulates when it is used and is squandered when stored. Knowledge is like joy: it increases when it is shared and is replenished only when squandered. In the past, knowledge was power, which could "kept under the mattress" or used only to achieve one's own purposes and dominate others. Power belonged to the few and the smaller that oligarchy was the more of it they had. Advocates of the ideology of knowledge management argue that thinking in relation to knowledge must be altered in such a way that people understand that the distribution of knowledge is power, power that belongs to us all. Corporate executives and consultants emphasise that active networking is a precondition for international success.

One of the important aims in knowledge work is to create new knowledge rather than merely to distribute or store what already exist. People's subjective interpretations are more and more important in knowledge work. Something that must be seriously taken as a subject of research is the way in which the human mind works. If only threats are seen everywhere and the atmosphere is pessimistic, the will to achieve agreed goals will also suffer from a lack of faith. How can we boost positive thinking and promote respect for creating new things and ideas?

6. How can enterprise be made an enticing option and the ability and will to take risks increased?

In the global economy countries and regions vie with each other to attract companies to locate and create new jobs. Job creation is a key consideration. So far, Europe has not been able fully to use new technology, provide incentives for investors in new sectors and create new jobs. Given how particularly strongly our prosperity depends on the global economy and technology, should not Finland, as an information technology country, take an active role in evaluating the structural problems that are besetting the European economy?

A growing proportion of new jobs in the future will be created in small companies and by people who employ themselves. An adequate level of succession in small companies and agricultural enterprises will require 50,000 - 60,000 young Finns to become entrepreneurs over the next few years. The existing juridical infrastructure does not provide sufficient encouragement to carry on an existing company or establish a new one. People must be given incentives and encouragement to become entrepreneurs.

One problem is a low level of capacity and willingness to embark on ventures. How, for example, can young talented students be made to appreciate enterprise and, when they graduate, set up new companies to employ themselves and others? How can the owners of small and medium enterprises be persuaded to see expansion as worthwhile?

There must be rewards for taking risks. Should not the tax system be changed in a way that supports enterprise and encourages people to embark on ventures? The status accorded an entrepreneur in Finland should be strengthened, thereby lowering the threshold to becoming one. How should the system of social security for entrepreneurs and their families be changed so that going into business and developing a one-person company would be a more appealing challenge relative to working for others than is now the case?

In the period of the so-called new economy that emerged after the recession of the early 1990s, hundreds of small companies were started up in Finland each year; there are about a thousand of them in technology centres. Of the some 3,500 active company customers currently on the books of the Technology Development Centre, 2,000 are small enterprises. To take the example of one category, about four hundred software companies have been started up. Growing technology companies are needed both to expand production and improve employment. What is involved is a growth substrate.

However, the fact that there are 230,000 companies in all in the country means that small technology firms can remain unnoticed. They differ in many respects from both Finnish companies serving the domestic market and large international export enterprises.

Legislation can also be used to promote enterprise. An example of this is an act regulating the company called Teollisuussijoitus Oy (meaning "Industrial Investment Ltd"), which entered into force at the beginning of 2000. The industrialist Yrjö Toivola, who is heading a national "godparent" programme for technology companies takes the view that it is now permissible also to take risks and that demands with respect to returns on investments have been moderated. He points out that in the USA so-called seed capital and three other rounds of raising finance can yield 200 million markkas (€33.64 million) per company. In Finland, too, more than at present should be invested during the initial stage, i.e. 10-100 million markkas (€1.68 - 16.8 million). That would speed up the rate at which innovations are brought onto the international market. What proportion of the revenues from the sale of shares in State-owned companies should be channelled into creating conditions favouring the emergence of new enterprise and the establishment of small companies?

"Unless venture capital on the same terms as equity is obtainable as initial capital, growth opportunities will be lost," says Toivola, adding "And if market forces do not fill this gap, society will have to do it.," (Suomen Kuvalehti magazine 7/2000).

7. How can growth centres be taken care of and new jobs created in the regions?

The Finns have wanted the whole of their country to be populated. But without work the regions will not thrive. It appears that without special measures unemployment and labour shortages will continue to co-exist in the country.

Globalisation is adding strong new features to regional policy. The responsibility that regions themselves bear for their wellbeing is growing. There is an awareness that in the future the starting point for development will lie more clearly in the resources and special features of regions, i.e. demand that has been boosted with the aid of supply.

A principle long adhered to in regional development is equality between regions. Its implementation in a pure form has proved difficult.

Expert tasks and new jobs are concentrated in growth centres. This is due to synergy-related reasons; companies need each other and a network of sub-contractors and principal actors is formed. This creates demand and opportunities for companies that provide other companies with services. The role that universities and other institutions of higher learning located in growth centres play in the development of regions is likewise substantial. The population of growth centres increases when people move into them in search of work. New jobs in the services that a growing population needs further strengthens concentration. Outside growth centres, the development has been the opposite in its principal features. There is often a belief that development is a zero-sum game; that the jobs added in growth centres have been lost elsewhere. Is it the case that in the future a large share of new jobs will be generated only in growth centres or will they fail to come into being at all?

Finland's success in the knowledge society will depend in part on growth centres. Shortages of housing and services can cause many kinds of difficulties. Infrastructure that lags behind modern standards is a threat to both companies' competitiveness and the functioning of society. How can the effective functioning of growth centres be ensured? How many growth centres can there be in Finland? Can the State through the measures it takes promote the emergence of new growth centres? How much have decisions and actions taken by regions and municipalities themselves influenced results and what effects will they have in the future?

Finland's reputation as a creator and adopter of new technology is good. Some well-known foreign technology companies have already set up R&D units in Greater Helsinki. The proposal that the Committee for the Future made in its 1998 report (TuVM 1/1998 vp) that an international company park be established in or near the capital is now more topical than earlier. How can it be made into a model that attracts international investment to Finland?

Considerably more than a half of the Finns live in urban and rural areas outside growth centres. It is important that new jobs are created in those areas to replace the ones being lost. This lies in everyone's interest, because otherwise we shall have to pay for the same basic living-related investments several times over. If the countryside empties, it will no longer have the services that both people and their companies need.

How can jobs be brought into being? One way that has worked and still does is the establishment by technology companies of distance workplaces. Numerous jobs have been created in this way and new subcontractors have gotten off to a start in provincial urban centres. Job creation can be promoted by developing and publicising the possibilities of distance working. Has any thought been given to how the fast telecoms links that distance working needs can be put in place? How much thought has been given to which job tasks can be performed least expensively outside growth centres, and have new companies been established to take care of them?

People's activity and capacity for innovation will continue to help determine how successful localities are.

A good example is Sievi, a municipality with a few thousand inhabitants, in Ostrobothnia, north-west Finland. There a few active entrepreneurs have created hundreds of new jobs in the electronics industry. However, Finland's municipalities as presently constituted are mostly too small to be able to create the conditions that will attract new companies and jobs. How can municipalities be engaged in effective cooperation with each other? Have, for example, EU subsidies been used consistently to create new sustainable functions or distributed randomly to projects with no potential for development?

As society changes, opportunities for enterprises and to create new jobs are to be found not only in advanced-technology sectors, but also in many traditional ones. For this new ideas and innovations will be needed.

SITRA (the Finnish National Fund for Research and Development) has a programme with the aim of creating new export industries by organising cooperation between small companies based in different parts of Finland and representing special fields of export knowledge. The first projects chosen for inclusion in the programme involve the manufacture of mobile phone cases and musical instruments. Two Finnish innovations, thermally-conditioned wood and a resonating acoustic surface, are suitable for use in musical instruments.

The application of advanced technology to conventional products and services is a sector that holds much promise for the future in Finland. SITRA's Upper Karelia project has made IT-users out of people who were in danger of becoming marginalised. Participation in local politics has been raised to a new level by enabling people to use a closed e-mail network. Now international companies in the information sector want to use North Karelia to find out what ordinary people think of the new services that they have been developing. Lapland, in turn, gives the automotive industry ideal opportunities to test their new vehicle models in winter conditions.

Citing the example of Wisconsin, the Committee for the Future pointed out in its 1998 report (TuVM 1/1998 vp) that Finland has great potential in the development of tourism. Is it possible to make tourism the fourth pillar of the Finnish economy, alongside the existing ones of electronics, forest products and metal products? Could tourism be the biggest employer in rural areas in the future?

The argument has been made that important choices in relation to work and equality and which influence regional policy were made 30 - 40 years ago. The establishment of universities and other third-level institutions was one of the most important of these decisions. Is the borderline between the part of Finland that is growing more prosperous and suffering labour shortages and the part that is becoming

poorer and has high unemployment settling into place depending on which region has a third-level institution? Was the establishment of a university or institute in itself an adequate choice? Looking at the matter from the perspective of the 1990s, it would seem that choosing the correct field of education and/or training would have been more likely to lead to success and wealth. In the current situation, technology and commerce are the fields that matter most. If the argument is correct and knowledge-based technological-economic development continues to strengthen, will not the impoverishing part of Finland curve deep into the interior, since from the perspective of the northern and eastern regions of the country, it is the University of Oulu that meets the demand that the range of subjects taught be well-chosen? Will the eastern city of Kuopio's breakthrough come only when the importance of biotechnology has risen high on the scale? How will the right choices for the next few decades be made now?

Something that must be taken into account in regional development is that many studies have shown that especially young people appreciate other things besides material prosperity. Their main reason for moving from the countryside to towns and cities is to find work, but a poor standard of services and a dwindling selection of entertainment are also important motives. The quality of life and intellectual atmosphere in a place depend on the economy, jobs and the number of people living there. What is to be done to arrest this downward spiral?

Despite all the efforts made in the 1990s, a question that remains to be asked is: Why is it that the development of information technology has not been able to raise the level of enterprise in the regions to the extent that would have been necessary, even though the significance of distance has declined in business? When information and service jobs are being rearranged (e.g. by putting services on a 24-hour basis), why shouldn't considerably more use than at present be made of distance working, which facilitates a good regional spread of development? Why shouldn't the essential work for the common good mentioned in point 3 above be transferred to regions with weak economies and poor employment?

One problem is that various actors (such as the Technology Development Centre, the Finnish Foreign Trade Association, the Foundation of Finnish Inventions, Finnvera Oyj, the Finnish National Fund for Research and Development, the Ministry of Trade and Industry, the Ministry of Labour, the Ministry of the Interior, Employment and Economic Development Centres, and so on) are not capable of sufficiently effective cooperation. This manifests itself especially clearly in projects requiring EU funding.

8. How can humanity be prevented from vanishing in a hardening economic climate?

As competition hardens, the global economy is approaching a situation in which humanity is in danger of being forgotten. Are people appreciated only as commodities with no properties other than their value when bought or sold? Are the prime beneficiaries of productivity growth large companies and investors, leaving those who live by their own work in an increasingly unenviable plight?

A good corporate culture is founded on shared values. When values are of a kind to which all can subscribe, communication is fast and value-added-based decision making is facilitated. This means that decisions are made in the places where the expertise appropriate to each particular case is best. A good corporate culture has the goal of ensuring the wellbeing of each and every individual and a sense of doing something important.

Only a good corporate culture makes it possible for business operations to develop favourably

over the long term and to succeed by repeatedly using turning points in the market to advantage. Thus a good corporate culture is a prerequisite for continuously creating shareholder value, which is of course the most important task of a company's management. (Managing Director Matti Alahuhta, quoted in the publication *Kokeneet viisaat* / "The Experienced Wise" 1.12.1999).

Work is not, of course, a person's only point of attachment; others include family, friends, animals, nature and the entire surrounding society. They are what enables people to bear and pass on their humanity. Should working times and conditions be changed in a way that leaves everyone time for themselves, their families, friends and hobbies?

The kind of workers in demand are highly-trained, youngish people with no children. People belonging to this category are doing a growing share of the jobs available. Will work become a way of life that swallows up all of their time, leaving nothing for what we used to conceive of as a private life and quality of life? Must work be shared between a greater number?

When flexibility is emphasised in discussing the development of working life, the starting point has often been, narrowly and taking a short-term view, corporate profitability. It must be recognised that a prerequisite for success on the part of the good companies of the future is that workers function well in the various spheres of their lives. Children have to be reared and practical matters taken care of. It is important for people to be comfortable not only in their work, but also in life generally. In other words, should not demands for flexibility be broadened to include also family life, study and participation in the affairs of society?

According to the stripped-down view of efficiency, work productivity increases when workers are forced into competing with each other and live in constant dread of losing their jobs. This thinking is not tenable: insecurity and mutual competition actually consume an enormous amount of energy. Is there any room left for creativity in that kind of situation, where all are guarding their respective bailiwicks? Dare an employee adopt new, distinct work methods when even the slightest error or failure can mean a weakening of one's position and loss of esteem?

When flexibility in working life is implemented on the basis of both the employer's and the employee's points of view and needs, both sides are committed to the goals decided on. This builds trust. Those who have fallen behind the pace of working life are in danger of becoming marginalised, because the welfare state's safety net is no longer without gaps. Are the only results of cuts in public-sector expenditure to be a degradation of the services with which people are provided, burnt-out workers and labour shortages?

9. What will be demanded of work and work communities in the future so that people will be able to bear them?

Studies show that more than a half of the Finns are suffering from some degree of symptoms of burnout. A study conducted by the Institution of Occupational Health in 1997 revealed that around one in five was very tired in their work. About 7 % were suffering from serious exhaustion with all its symptoms. That means that a total of 165,000 of the workers in Finland were suffering serious work exhaustion in 1997. The total is now estimated to have increased to 200,000. In relative terms, work exhaustion is

more widespread in this country than in the EU as a whole. It is a problem that affects more than just ageing workers. The latest studies show that there were more exhausted workers among the under-30s than among 50-year-olds.

The studies of work exhaustion have been criticised in medical circles. It has been pointed out, for example, that they are based on reporting subjective experiences rather than the frequency with which symptom clusters have been found to appear. Another point made is that feeling tired, fed up and concern about the future is not the same thing as being exhausted in a clinical sense due to work. Not all tiredness is caused by work.

Without taking a position on the correctness or otherwise of the research results, it is obvious that competence-based workplaces that are successful and from people's perspective good are expected to have new ways of working, a new style of management and a different atmosphere. With labour shortages worsening, we cannot afford a situation in which workers - also young ones - become exhausted, unnecessarily in view of the opportunities that exist to reform working life. Are too many workers planning to retire at fifty or so? Do demographic forecasts demand that this tendency should be arrested as a matter of urgency?

Why is it that so many Finns do not enjoy themselves at work? Why are dreams being transferred to the years of retirement? Could not the dream also be a challenging job, which would add extra value to the individual's life and make him or her feel important? Can workplace not be of a kind that people can genuinely feel is their own?

According to the Institution of Occupational Health, a large part of the exhaustion observed in the social-welfare and health sector is attributable to the fact that workers feel they have no opportunity to influence their own work. Does part of the blame for this lie with weaknesses in the system of responsibility and management?

How can mutual encouragement and respect be developed at Finnish workplaces? Motivation courses are not enough as long as people still feel that time spent at them is that much less to devote to taking care of jobs that are getting on top of them anyway? How can a work community be transformed into a learning environment, where information and skills acquired through learning are passed on in a natural way from one generation to the next?

There is often an association between the strength of workers' commitment to their job tasks and the form that their employment relationship takes. It is difficult for a casual worker to feel part of a work community where his or her contribution is needed for sequences of, say, six months over a period that can be years in length. That growing flexibility in working life means lower pay and less training can be seen as something of a paradox.

Experts emphasise that people in a learning organisation are motivated to develop in step with new tasks. The structures in an ideal work community are of a kind that not only make it possible for all to learn, but also to experiment and learn from mistakes. However, especially for older people, learning - having to do it - can easily become a new burden. Constantly having to embrace new knowledge and acquire new abilities is onerous. There have to be times that people can devote to making use of what they have already learnt. Does an excessively rapid pace of renewal exhaust people or get them down?

According to one Finnish study of working life, however, (Satu Lähtenmäki: *Mitä kuuluu - kuka käskää?* 1995) a worker's job career too often consists of the following sequences: question mark, promise, young lion, star, milch cow and dog. The same study identifies a career development curve with the following phases as desirable from the perspectives of both the worker and the organisation: 1) junior or apprentice, 2) evolution into independent partner, 3) respected professional or senior, 4) mentor with a gradually diminishing role, and 5) ambassador who has withdrawn from an active role.

There seems to be a tendency in Finland to devote almost all attention to knowledge work. The work situation of, for example, small businesspeople and farmers and the pressures to which growing demands for profit and efficiency subject them have been given too little deliberation. If the aim is to increase small-scale enterprise, it is important to create an encouraging system of basic security for all entrepreneurs.

10. How can uncertainty be reduced and marginalisation prevented?

The knowledge society will not be stable, because its basis is change. Uncertainty, calculation of economic profit based on expectations and dealing rapidly with changes are the features of the new economy. Profound changes and uncertainties bring marginalisation in their wake. The danger of marginalisation does not apply only to individuals, but also to whole groups, including large ones.

One answer to marginalisation lies in changing the way people view the concept of work. Could it be possible to begin according esteem also to forms of work other than traditional paid employment as well as to various ways in which people make themselves useful more clearly than is now the case? The role within the pattern of Finnish working life of work done at home, within organisations and by carers must be studied.

Arising from life-curve thinking is also one difficult work-related problem, which could be expressed in simplified form as concern about the way in which people's sense of responsibility for their neighbours is waning. We can ask, for example: has the question of why institutional care has been resorted to on such a wide scale in various stages of life been thought through in Finland? How will this society relate to the care of the baby-boom generation when they begin reaching old age?

It would be wrong to promise citizens that the knowledge society will bring stable conditions, a secure economy and growing prosperity for all. Not even the strongest state can do that, because the borders of the economy, science, technology and other functions that determine human prosperity have been thrown open and the nation-state no longer wields effective means of regulation. The bottom line is that we must learn to live with uncertainty. How can individuals prepare to make their own choices with respect to training and careers that they believe will ensure them a good future and also in other respects bear clearer responsibility for themselves and their families? What are the new means at the disposal of the State, in its capacities as a nation-state and global actor, in creating the conditions that will make it possible for work and life to be on a more equitable basis?

New report on the future in the pipeline

At the end of its spring term in 1999, the Committee for the Future sent the Prime Minister a letter recommending that the next report submitted to Parliament by the Government focus on the knowledge society. The decision to accord the Committee for the Future permanent status is an expression of the strengthening of parliamentarism that the new Constitution has brought about; in addition to its traditional functions, Parliament is now an active instigator of initiatives. With the future of work in mind and taking the Government's earlier reports into consideration, the Committee recommends that the Government draft a report on the digital economy and competence society in the course of 2000. The principal matters dealt with in it could be:

- a) the role of the State and politics in building a society founded on knowledge and ability;
- b) evaluation, from the perspective of practising politics, of success factors in an information- and technology-based economy and of Finland's competitiveness;
- c) as assessment of what kinds of major problems relating to principles and ethics Parliament will have to resolve, and
- d) political policymaking in relation to these matters.

Helsinki, 8 March 2000

The following persons participated in decisive deliberation of the matter by the Committee:

Chair	Martti Tiuri /National Coalition Party
Deputy Chair	Kalevi Olin /Social Democratic Party
Ordinary Members	Jouni Backman / Social Democratic Party*
	Leena Harkimo / National Coalition Party*
	Leea Hiltunen / Christian Union*
	Susanna Huovinen / Social Democratic Party*
	Reijo Kallio / Social Democratic Party*
	Kyösti Karjula / Centre Party
	Jyrki Katainen / National Coalition Party
	Markku Markkula National Coalition Party
	Rauha-Maria Mertjärvi /Green Party*
	Petri Neittaanmäki / Centre Party*
	Juha Rehula / Centre Party*
	Esko-Juhani Tennilä / Left-Wing Union*
	Pekka Vilkuna / Centre Party
Alternate Members	Niilo Keränen / Centre Party*
	Pertti Turtiainen / Left-Wing Union*

Committee Counsellor Paula Tiihonen served as secretary to the Committee.

* Member participated for part of the period in question

With the advance of the information society competence founded on intelligence has, in turn, become a commodity of incalculable value. It is driving the new economy of the Internet era, but is a very personal advantage and property. It is not material, nor can it be shared. It is becoming increasingly difficult to distribute the additional prosperity that flows from competence. There is an argument that if attempts to do so, invoking the principles of national equality and a solidarity-based incomes policy, are taken to excess, competent people could emigrate.

In other words, due to the quite different structural factors outlined above if to nothing else, the new perception of equality accepts that in the new economy it is not possible to do by political means as much about income differences as was the case in the past. But yet it remains possible to do a lot - and specifically through politics - to ensure that there are no poor people. According to this thinking, equality is more clearly a relative thing than it used to be.

In German culture, the matter was expressed with delectably complex simplicity in an article in the newspaper *Frankfurter Allgemeine Zeitung* early this year:

"Aber wenn es schon nicht allen gleich gut gehen kann, so soll es doch, meint man, wenigstens allen gleich besser gehen, und wenn es schon nicht allen absolut oder prozentual gleich besser gehen kann, so soll es doch keinem schlechter gehen, wenn es so vielen wesentlich besser geht." (Herbert Giersch: Immer schneller, gefährlicher, ungleicher. Das Wirtschaftswachstum in Zeiten der Globalisierung. *Frankfurter Allgemeine Zeitung*, 15.1.2000).

It loses a lot in translation, but this is the gist of it:

"Even if not all can prosper immediately, then at least things should immediately improve for everyone, the thinking goes. And even if things can not immediately improve, absolutely or in percentage terms, for everyone, then at least things should not disimprove for anyone when things are going substantially better for so many." The author was Herbert Giersch and the title of the article was: Always faster, more dangerous, more unequal. Economic growth in an era of globalisation.

Experts discuss the same pressures to modify equality when they talk of two kinds of social policies: the Nordic one in which equality is emphasised, and the kind more generally embraced in Europe, a model that is geared more towards eliminating bad conditions and especially poverty.

Sweden's former long-serving Minister of Finance Kjell-Olof Feldt stated his position on the ongoing equality debate earlier this year (*Svenska Dagbladet* 31.1.2000) when he pointed out that "growth yields a better result than an equalisation policy with the aim of levelling income differences."

The 84-year-old Professor Paul A. Samuelson, who won the Nobel Economics Prize in 1970, witnessed all of the booms and busts of the 20th century and is still doing research, provided a kind of opening for the Finnish discourse. In an interview with a Helsinki business newspaper (*Kauppalehti Optio*, 16.12.1999) he pointed out that "taxation is the price we pay for a civilised society." He urged the Nordic countries to prepare for intensifying criticism of the costs of the welfare state and to choose carefully where to spend public tax resources. One of the problems of the new century and millennium that Samuelson names is that of how we can manage to maintain even the limited welfare state that he advocates. On the subject of unselfishness (put simply, willingness to pay taxes) he gave his Finnish

readers the following piece of advice: "Because we have so little unselfishness, it has to be rationed rather than being squandered on, for example, public works or similar things."

What is at issue at base is whether the information society will bring more work and equality. Its most ardent champions talk of the great new opportunities that are opening up for all. The Industrial Revolution is said to have created a work-based equality, which the IT Revolution is carrying further. However, not all share this optimism. Words of caution are coming even from the USA, the country that has gone furthest in developing the information society. One of the best-known figures voicing them is the historian Arthur Schlesinger, Jr., who says:

"The computerized world poses problems for democracy. Where the Industrial Revolution created more jobs than it destroyed, the Computer Revolution threatens to destroy more jobs than it creates. It also threatens to erect new and rigid class barriers, especially between the well-educated and the ill-educated. Economic inequality has already grown in the United States to the point where disparities are greater in egalitarian America than in the class-ridden societies of Europe." (Has Democracy a Future?, Foreign Affairs, September/October 1997).

Another difficult subject that was identified, but analysis of which has not gone far enough, was the dominance of technology in the society of the future. The well-known analyst of the new economy and governance Professor Lester Thurow points out that technology runs ahead of sociology. A fundamental prerequisite for success is that people, also consumers, accept new technology. As Thurow sums it up:

"Sociology almost always dominates technology. Ideas often lie unused because people do not want to use them. The fact that something is possible does not mean that it will happen. Time lags are long and great persistence is needed to bring a truly new idea into the market. Steam toys have been unearthed in the archaeological exploration of ancient Greece, and the ancient Egyptians had steam-powered temple doors, yet the steam engine did not emerge as a source of power for economic production until the eighteenth century. The right sociology had to be in place for revolutionary new products to emerge." (Creating Wealth 1999, p. 85).

The task of politics is to get technological development, values and attitudes to support joint management of change. In Finland and the Nordic countries generally, things have remained well so far. By contrast, the rest of Europe is in considerable difficulties, as can be read in the Committee's submission on the EU Commission's *e*Europe communication.

A third problem of working life in the Finnish information society is the structural long-term unemployment that has persisted in spite of prosperity and a booming economy. According to the Ministry of Labour, there were about 450,000 unemployed job-seekers or persons employed within the frameworks of various work-creation programmes at the end of 1999. The instances responsible for managing the finances of the State point out that if one adds to this total the persons on unemployment pensions, around half a million people of working age, and in principle also capable of working, were without jobs. This unused reserve represents about 20% of Finland's national labour force.

It is dangerous to be lulled into taking good times for granted. How would the Finns have coped with the 1990s if our economy had not been growing at one of the fastest rates in Europe for many years and without our success in information technology with Nokia in the vanguard and with all of the ripple effects of that? What if realisation of Sonera's record good result had not happened and allowed so much

of the national debt to be paid off? We must have the courage to think aloud about also very bad alternative courses of future development. And what if the slide in high-tech share prices that began in the USA in April continues, threatening the whole foundation of the "new economy"? What does this mean for Finland, whose future is firmly linked to the development of the global economy and modern technology?

Since Finland operates in a global world also with respect to work, it is perhaps good when reflecting on the future of employment in this country to bear in mind a few items of information that are impressive in their simplicity:

Some 1.2 billion people in our world live on \$1 a day, 24 per cent of people in developing countries and 2.8 billion in the whole world live on less than \$2 a day. According to Horst Köhler of IMF nobody can accept the fact that about half of the population of the world has to survive with less than \$2 a day.

"At a time when 99 percent of the world's labor force growth in the coming decades will take place in the developing world, and when the world as a whole is confronting so many economic and social challenges -- it is crystal clear that a stable flow of capital from the industrial world to the developing world will be essential to a successfully integrated global economy." (Treasury Secretary Lawrence Summers 31.1.2000).

When *Ten Pain Spots in the Future of Work* was being deliberated by the Committee, the following question was among those that arose when the discussion turned to the subject of work and production being transferred to Asia:

From the perspective of people's shared global future, is there any justification for placing obstacles in the way of the new international division of labour that may be emerging? Is it not the case that by transferring knowledge work to poor countries we can best achieve a goal of 1960s development policy, namely rather than sending money to states and their leaders without any return, we send work, which enables families to prosper and gives people their opportunity?

Parliament must continue to deliberate painful themes connected with the new equality, the dominance of technology, the tenability of the foundations of the welfare state and other questions with a bearing on the future of work, even though satisfactory results are not always achieved. That is democracy.

Paula Tiihonen
Committee Counsellor

P.S. The assessment being done by the Committee for the Future in order to facilitate policymaking in our society has received recognition. The latest example of this comes from the "2nd European Parliamentary Conference on Information and Communication Technologies", which was held in Athens on 3-4.3.2000. The work being done by the Parliament of Finland in relation to the future was mentioned in the resolution that the conference sent to the EU summit in Lisbon: "More research is needed about the likely changes in the society as a whole and about the nature, quantity and organisation of work. Finland now has a permanent parliamentary Committee for the Future and some countries have Ministers or Ministries for Innovation and the Information Society. All Parliaments should have some mechanisms for looking ahead at the broader social impacts of current technology change."

Seija Ilmakunnas, Jaakko Kiander,
Pekka Parkkinen and Antti Romppanen

**GLOBALISATION:
THE END OF WORK?
THE ECONOMY AND
EMPLOYMENT
IN FINLAND TO 2030**

Valtion taloudellinen tutkimuskeskus
Government Institute for Economic Research
Helsinki 2000

Summary

This report assesses the development of Finnish economy up to the year 2030. The report describes the interdependence of technological development, productivity and employment and evaluates the long-term growth prospects of the economy. A key factor for the perception of the future lies in the projected growth and age structure of the population. The long-term balance of the national economy and pressures arising from taxation and expenditure are assessed based on population and productivity forecasts. The report ends with the following key conclusions:

Full employment is a realistic possibility. There is no fundamental obstacle in achieving high employment. Several countries where the ratio of employed to the working age population is markedly higher than in Finland are evidence of this. While the internationalisation of economies increasingly emphasises the significance of competition and may limit to some extent the scope for negotiation on national policy, it does not pose an obstacle to full employment.

Technological development increases real income. It is likely that during the next 30 years technological development will not succeed in supplanting people in the service sector. Technological development makes more effective use of resources and offers a wealth of new potential reflected in the improvement of living standards. While structural changes enjoined by technological development and the international division of work will continue, the nature of work and of the labour market will hardly be altered radically during the next 30 years. Some business sectors will shrink and others will expand with the incidence of new products and a waning demand for others. Such changes have always occurred and will continue to occur in the future. New technologies of today will become common place in tomorrow, improving the quality of goods and services. The significance of the disparity in expertise levels as separating labour markets from workers and causing unemployment should not be exaggerated.

Maintaining full employment requires stability and growth-oriented economic policy. Experience shows that unemployment can quickly rise as a consequence of missteps in economic policy. Unemployment also has a tendency to become chronic. That is why implementing long-term goals for employment presupposes its prevention in the short term. However, for the establishment of full employment, it is not enough to prevent unemployment. In order for the greatest potential number of those of working age to be employed, there must be sufficiently rapid and stable economic growth and labour market institutions that support labour demand and labour supply must exist.

A generous social security system and the high level of taxation are as such no obstacles to full employment. However, the incentive structure formed by taxation and social security must support job creation and participation in work. Strong participation by those of working age in the labour market is an

indispensable prerequisite of the advanced welfare state. As the population ages, this will become more and more crucial.

The Finnish economy must prepare for an ageing population. The expected fifty percent increase in the number of pensioners in the next 30 years will raise the share of pension expenditure. The future manifold increase in the number of elderly (over 75 years old) will greatly step up the demand for welfare services. Consequently, a rapid increase in public expenditure will occur in coming decades. We must prepare for this eventuality reducing public debt in coming years, while the demographic structure is still to our advantage. At the same time, we should endeavour to implement economic policies which lead to greater employment and a widening of the tax base. This will best ensure the financing of future public expenditure.

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1 Introduction

Both political decision-making and long-term planning of the national economy require that we investigate future development trends. While it is obvious that the future is imponderable and that nothing certain can be said about it, it is still necessary to make choices and decisions which will have repercussions in the future. By studying past developments and relying on the most reliable forecasts, some broad lines of future developments can be sketched.

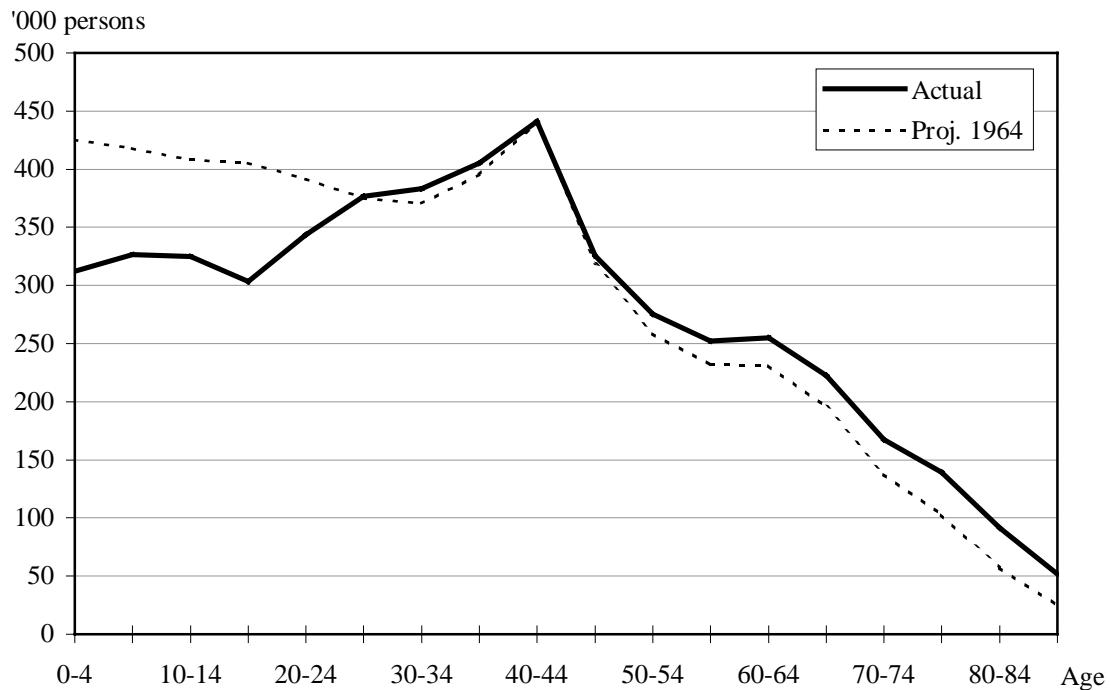
The questions in this report will centre on employment, economic growth and the public finance. The report assesses the growth prospects of these issues over the next thirty years, i.e. the years 2000 - 2030. The central and most likely change is that the ageing of the Finnish population will create further pressure to increase public spending and tax burdens in future. Other changes, such as technological development and a structural change in the economy, will expand the course of development but fail to reverse the strong effect of demographic and public sector change on the economy.

A survey to the year 2030 of the development of the Finnish national economy and of employment in particular, based on research and investigative results, is contained in what follows. The interdependence of technological development, productivity and employment is described and the long-term growth prospects of the economy are assessed. Demographic projections form an important basis for a perception of what the future holds. Along with productivity forecasts, they will be used to analyse the stability of the public finance in the long term and pressures on taxes and expenditure.

Viewed in retrospect, estimates about the future are more often than not wrong. Reference to population projections of just a few decades ago will easily convince us that this is so. At the start of the 1960' s, the demographic projection of the National Planning Office (NPO, 1964) for the year 1990 hit upon the total population figure exceptionally well (See Figure 1). The projection was for Finland' s population to number about 5.2 million inhabitants, whereas the actual figure was 5.0 million. The 30 year projection was off by only 4 per cent which is remarkably little. When the projection is examined by age group, it will be noticed that the hit was right on the mark. Figures for fertility and mortality rates were overestimated, but the totals tallied almost exactly.

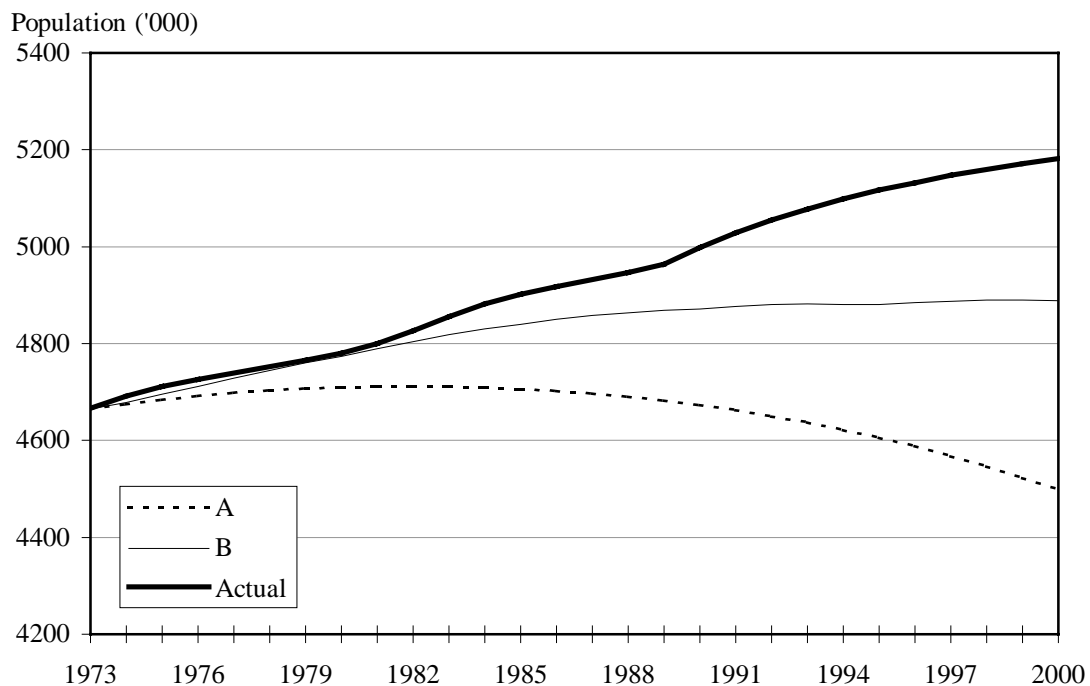
Compared with this projection, those aged under 20 years in Finland amounted to 400,000 in 1990 or 30 percent less than anticipated while those aged over 50 years amounted to 200,000 or 15 per cent more than expected. The older the age group in question, the more the projection was wide of the mark. There were more than 50,000 people aged over 85 in Finland, or twice as many as projected.

Figure 1. Actual population by age group in 1990 and projected by National Planning Office in 1964



Together with fertility and mortality rates, immigration and emigration can lead to surprising demographic trends over a period of time. Statistics Finland published demographic trend calculations in 1974. The fertility rate and mortality projections fluctuated but the net migration figure was presumed to be zero. This was a very optimistic starting point, given the experience of negative net migration in the 1960s. In the more favourable development scenario (Alternative B, Figure 2), the mortality rate was projected to remain low and the fertility rate to rise from the low figures at the start of the 1970s such that there would be zero population growth at the turn of the century. In the other scenario (Alternative A, for example) the population count turns down as early as the 1980s.

Figure 2. Population figures 1973 - 2000 and Statistics Finland projection in the year 1974



The fertility rate and mortality projections held good until the 1980s, although the number of births was somewhat higher and the mortality somewhat lower than forecast. The actual population trend began to clearly differ from that projected only in the mid-1980s. The fertility rate remained higher than projected and the mortality rate did not rebound upwards as much as was expected from the low mortality rate. In addition, Finland began to achieve a net immigration increase. Finland's population in the year 2000 is already 300,000 persons higher than the most optimistic and 700,000 persons higher than the most pessimistic projection 25 years ago.

These examples point up the uncertainty attaching to long-term projections. The key population features from the economic standpoint can differ substantially from those projected within a couple of decades even though factors influencing them were well forecast and the overall population count was reliably predicted. The same uncertainty naturally attaches to economic forecasting. However, scrutiny of past developments allows us to perceive what great changes can be possible during the next 30 years.

While conscious of the uncertainty of projections, we have put forward in the report certain quantitative calculations regarding development of the economy. These calculations are tied to certain basic factors such as changes in the age structure of the population, the historical development of job participation and productivity and a change in the structure of commerce and industry in Finland akin to what has already taken place in more affluent and developed countries.

In the following chapter, we will discuss the issue of globalisation and the future of employment. Chapter 3 deals with the interdependence of economic growth and employment levels. Chapter 4 puts forward estimates about demographic development and labour force potential in Finland until the year 2030. Chapter 5 surveys the pressures on public expenditure based on the projected demographic development of the next 30 years. The final chapter contains concluding remarks.

2 Technological development and long-term prospects for the economy

2.1 Perceived threats in the future

The scenarios of future often involve the perception of threats. Key sources of apprehension are the potential cessation of fresh water, raw materials and energy resources, the destruction of the environment and overpopulation. The classical example of how these problems made headlines is the 1972 report of the Club of Rome, *Limits of Growth*¹. Rapid global warming has become the biggest environmental risk of the 1990s. Compounding these perceived risks since the 1970s have been fears regarding the domination of technology, uncontrollable automation and ever increasing unemployment. Many critical writers link a variety of perceived social risks to the recent phenomenon of what is termed the globalisation of the economy, meaning in particular developments which led to the domination of the market mechanism and of the multinational companies after market deregulation in the 1980s.

Globalisation is frequently regarded in contemporary critical discussion as being related to the rise of inequality, the end of work and marginalisation. In particular, sociological criticism of globalisation has given emphasis to these features.² It would hold that a contemporary and more cosmopolitan capitalism together with rapid technological development leads to the strengthening of the market forces representing multinational companies and investors. The discipline imposed by markets restricts the set of policy alternatives available to national decision-makers. When national capital is the object of competition, it is often considered that national policy has no alternative than to please the investor. It is feared this will lead to social dumping and adverse tax competition, which in their turn undermine prosperous nations.

These critics of globalisation consider that rewarding typical market economy winners increases income differences on the labour market and destroys the efforts of ethnically homogeneous states towards a balanced distribution of income. In addition, technological development and automation are presumed to supplant just those tasks which require the least expertise and to increase

¹ The U.S. based Worldwatch Institute has drawn attention to the same concerns in its annual *State of the World* publication.

² Among the well-known sociologists most opposed to globalisation may be counted *Pierre Bourdieu* and *Zygmunt Bauman*. *Anthony Giddens* finds also potential for positive developments in globalisation (See e.g. Allardt, 1999). The end of work and the division of society consequent on technology have been portended in the works of *Jeremy Rifkin* (1995) and *Robert Reich* (1995).

unemployment. The opinion has been put forward that technological development has so changed the nature of job tasks that work will no longer be available to those who are poorly educated.³ It is feared that the society of the future will be riven into two groups of citizens comprising on the one hand an economically well-off and overemployed middle class and an ever-growing, increasingly marginalised band of the unemployed and impoverished on the other – topped off by the jet set of the extremely wealthy and successful.

Various kinds of policy interventions have been purposed as solutions to these problems. According to some proposals, ecologically sustainable development should be promoted by taxing operations that are detrimental to the environment. Globalisation and the power of international capital should be further restrained by limiting foreign trade and taxing short-term international capital movement. Among the alternative solutions to structural unemployment caused by technological development have been an increase in wage differentials, various forms of employment support and basic income.

It is clear that rapid technological change and permanent mass unemployment found in many Western countries may give rise to such pessimistic perceptions as those outlined above. A great number of critical opinions of even well-known thinkers, however, are based on speculative rather than systematic, empirical analysis. Therefore, in order to evaluate the perceived risks bearing on the future (and the present) there is good reason to survey what kind of development industrialised societies have actually undergone during recent decades. By examining development as it stands, some indications can be gleaned about the interdependence of certain catalysts and about what kind of development trends and perceived risks are possible or likely during the next 30 years.

2.2 Development in OECD countries

Globalisation is not a new phenomenon

Free trade, transfer of production factors across borders, internationalisation of companies and international, large-scale capital movements are all considered typical features of globalisation. Globalisation and freedom of the economy are often presumed to lead to more restricted stratagems for national economic and social policies. International capital mobility forces countries and regions to compete over investments. The scope for independent economic policy decreases and the risk of social dumping and adverse tax competition increases. Many

³ Such ideas have also been put forward in the public forum in Finland. Osmo Soininvaara has written about the chronic structural problems created by the disparity of expertise levels and the consequent need to approve even greater pay differentials between those who are expert and those who are not (See, for example Soininvaara, 1994). This is known in economics as "skill-biased technological change".

critics regard internationalisation and the deregulation of markets and economics at the close of the twentieth century as a new and revolutionary feature of development.

However, international trade and capital movement across borders are by no means a new phenomenon. Their expansion at the close of the twentieth century is more indicative of a return to the situation prior to the First World War. At that time, international trade was relatively widespread and free and the transfer of labour and capital across borders was unfettered. It is often considered that the period preceding the First World War (especially between 1870 – 1913) was the golden age of capitalism, when economies were free of regulation and the monetary values in most countries were stable thanks to the gold standard. The ratio of foreign trade to overall production was as high in many countries as it stands today and international capital movement was considerable. Table 1 shows that, measured by the relative export level, the Finnish national economy was fairly open even as early as the 1920s.⁴

Table 1. Ratio of goods and services exported to gross national product in Finland, %

Year	%
1900	27.0
1925	35.0
1950	18.0
1975	22.9
1999	37.3

The two world wars and the Great Depression between them broke down the liberal international economic system based on free trade. The First World War undermined the gold standard and post-war inflation and the recession of the 1930s together made most countries to increase economic controls and resort to protectionism. The post-World War II Bretton Woods currency system was likewise based on the control of international capital movements although global trade was gradually made more free. International capital movements were freed from controls in most industrialised countries only in the 1980s.

Significance of mobility of capital and tax competition not to be exaggerated

If there are no restrictions to capital mobility, investment capital will be allocated to where it earns the best return. In practice, however, this rule applies only partially. It is important to emphasise that usually foreign investment never amounts to more than a small portion of all investments. Correspondingly, only a small portion of each country's savings are invested in foreign locations. The majority of investments in the global economy today are in most countries

⁴ See, for example Riitta Hjerpe (1989).

directed to the domestic market. Correspondingly, domestic savings have always been and continue to be the key source of finance for investments. The freeing of capital movement certainly increases the significance of international capital movement but it does not reverse the fact that, as a general rule, each country finances its investments through its savings.⁵

There is hardly any evidence that free trade and the free movement of capital and labour would result in social dumping or the equalisation of tax rates. Instead, of these harmful outcomes we more often can observe how free trade and foreign investment capital provide developing countries with the potential to faster growth by means of investments and exports. Free trade opens the way for the products of developing countries to reach the markets of more prosperous countries.

Nor do free trade and free capital movements automatically lead to the elimination of disparity in tax rates. There are considerable and fairly permanent differences between the Member States of the European Union and individual states in the U.S.A. with respect to tax rates, which only goes to show that not even long-standing and far-reaching integration leads to the equalisation of differences in taxation. A good example would be to compare Denmark and Germany. Both countries share a border and belong to the EU. However, the taxation level in Denmark is 10 % higher than in Germany. The difference has not yet resulted in an intolerable situation.

The explanation for the continuing disparity in tax rates is the limited mobility of the labour force. The labour force and real estate can generally be objects of relatively high taxes due to their lack of mobility. In Western Europe particularly, the labour force is of limited mobility. This is why it is possible to maintain advanced welfare states that require high taxes. The tax burden is primarily born by the labour force, which in Europe especially is loathe to move from one country to another.⁶ It is only the taxation of easily transferred financial capital which has to be reduced. Nor is the general tax burden a deciding factor from the standpoint of capital investment: the proximity of markets, a trained labour force, the infrastructure and unit work costs are more crucial factors which can compensate the negative effect of high taxes.

⁵ The significance of foreign capital for the financing of domestic investment was highest at the close of the nineteenth century in North America. Correspondingly, the significance of foreign capital as a source of finance for investment purposes is greatest in the emerging economies of Central and Eastern Europe. On the other hand, the fast growing economies of the Far East, such as those of Japan, South Korea, China, Taiwan and Singapore have mainly relied on domestic savings.

⁶ See, for example A. B. Krueger (2000).

Table 2. Taxation and public spending in Denmark, Germany and Finland 1998

	Overall tax rate	Value added tax	Public spending as a percentage of GDP
Germany	42	15	46
Denmark	51	25	55
Finland	47	22	48

Source: OECD.

The possibility of maintaining differentiated tax rates in different jurisdictions within a common market makes the co-existence of differentiated public sectors and welfare systems possible. Therefore, it cannot be said that globalisation or integration will lead inevitably to eliminating differences between any two countries. On the contrary, there are signs indicating that the openness of economies correlates positively with the level of social security and the tax rate.⁷

Rise in productivity a sign of technological development

The critics of technology claim that rapid technological development removes a large share of the labour force permanently from the labour market. Many researchers regard the high unemployment experienced in industrialised countries at the close of the twentieth century as a consequence of the concurrent rapid, if not runaway, development of technology. According to this view structural change and the demand for new professional skills lead to the polarisation of society, the marginalisation of considerable groups of the population and to permanent mass unemployment. Some like Rifkin call it the end of work. Yet one may ask how well-founded are such points of view?

The effect of technological development on the demand for labour can best be measured by means of the productivity growth rate. By labour productivity is meant simply the amount produced divided by the number of workers or length of time worked. A rise in productivity from the same amount of work will result in greater production than before or, alternatively, unchanged production can be attained by reduced work input.

Table 3 shows the development in productivity in Finland in the twentieth century. The case of Finland is not appreciably different from other industrialised countries. The table indicates that labour productivity, measured by using the number of hours worked increased by a factor of more than 13 over a period of a century.

⁷ Rodrik (1996) argues that nations with small open economies tend to protect themselves against the risks of openness.

Table 3. Employment and work productivity in Finland 1900 - 1999

	Employment '000 persons	Work time, hours/year	Work input, (1900)=100	Production, (1900)=100	Production/ worker, (1900)=100	Production/ hour of work (1900)=100
1900	1024	2298	100	100	100	100
1930	1400	2227	132	208	152	157
1950	1849	2058	162	386	214	239
1970	2273	1924	186	1000	451	538
1990	2477	1728	182	1910	790	1051
1999	2254	1697	162	2226	1009	1366

Source: Statistics Finland, National Accounts. Riitta Hjerppe (1996). Pekka Tiainen (1999).

At the same time, output per worker has increased tenfold. This indicates that a third of the growth potential created by the increase in productivity has been used by reducing working hours. The number of annual working hours has decreased on average over a century by almost 30 %. It can also be seen from the table that while a sustained and rapid rise in productivity took place, the number of those employed rose – at least until 1990. There was an abrupt fall of about 20 % in the number of employed at the start of the 1990s, after which employment began to recover in 1995. Perhaps it might be concluded that a rise in productivity of itself does not lead to a reduction in employment.

The rise in productivity in Finland has followed to a large extent the same path as in other industrialised countries. It can be seen from Table 4 that the rise in productivity was exceptionally rapid everywhere in the post-war decades, whereas starting in the 1970s, it slowed down in many countries.

Table 4. Average annual rise in productivity during the twentieth century

	Finland	Germany	USA	Japan
1900-13	2.42	1.41	1.98	1.88
1929-38	1.89	2.34	0.74	3.41
1950-79	4.37	5.52	2.30	6.92
1979-98	2.61	1.98	1.10	2.01

Source: Maddison (1982) and OECD.

2.3 Productivity, unemployment and employment

The argument put forward by critics of technology is that automation and a rise in productivity reduce the need for the labour force and result in unemployment. An examination of past development, however, yields an entirely contrary conclusion: rises in productivity have been most rapid when unemployment was lowest and, correspondingly, slow productivity growth is linked to periods of unemployment. During the 20th century, industrialised countries underwent a

period of exceptionally high and extended unemployment in the 1920s and 1930s and again after the mid-1970s. Sluggish productivity development was linked to both periods.

A reasonable explanation for this observation is that productivity does not cause unemployment (or vice versa). Instead, there are other factors influencing both productivity and employment levels. The most plausible interpretation will be found in investments. Investment levels fell during the deflation period between the two World Wars and again in the last quarter of the twentieth century due to the high real interest rates and general economic uncertainty. A lowering of investment levels means that capital stock growth slows, which in turn slows any rise in work productivity since new technologies are usually taken into use by investments. On the other hand, a dip in investment levels slows economic growth and reduces the need for labour. Consequently, it is natural that a reduction in the pace of growth will be linked to weak employment levels.

Table 5. Investment levels; formation of fixed capital as percentage of GDP

	EU	USA	Finland	Sweden
1961-70	24.6	20.3	29.4	23.7
1971-79	23.4	19.9	28.6	21.7
1980-89	20.7	19.3	25.3	19.8
1990-99	20.9	19.9	19.5	18.0

Source: OECD.

It can be observed from a comparison of unemployment levels (See Table 6) that there has been a growing trend in unemployment in EU countries from the 1970s. Unemployment rose to permanent higher levels after the oil crisis of the 1970s and the recessions of the early 1980s and 1990s. Thus, a glance at the average of EU countries alone might lead one to conclude that there was an end to work. A corresponding trend was not evident in the United States, however. Finland and Sweden also avoided the rise in unemployment of the 1980s, although they later experienced it in the 1990s.

Table 6. Unemployment levels

	EU	USA	Finland	Sweden
1960-69	2.1	5.0	1.6	1.6
1970-79	4.0	6.3	3.8	1.7
1980-89	9.0	7.3	4.9	2.4
1990-99	10.4	5.8	13.2	6.4
2000e	9.5	4.5	10.0	5.0

Source: OECD.

High unemployment and corresponding reductions in employment rates should not be considered as a law of nature or a fate invariably awaiting all countries. It

can be easily seen from comparing various countries that there are considerable differences in unemployment rates and in the ability of economies to provide employment. It should be recalled that the development of unemployment rates does not tell everything there is to know about employment; it is also worth checking employment rates, which indicate the percentage of employed to the working age population.

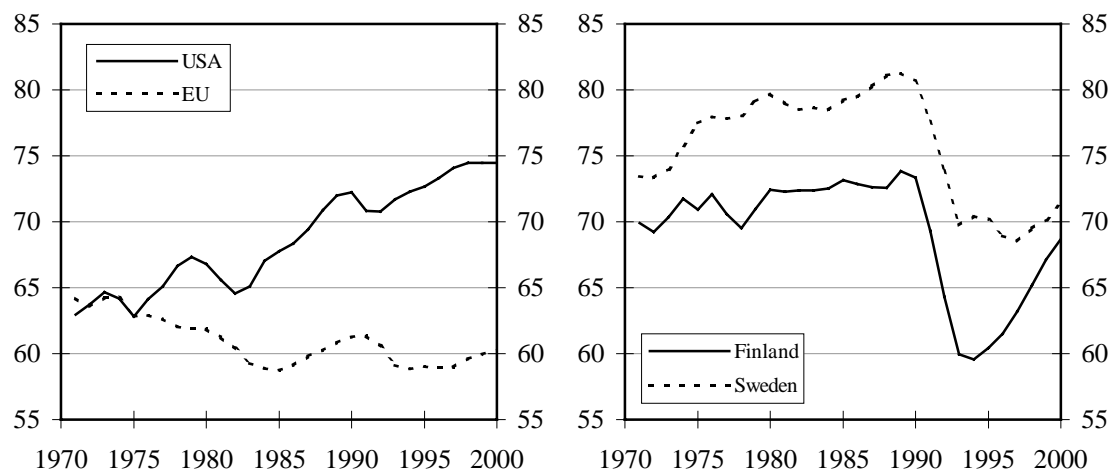
An examination of employment rates shows that in the EU countries the employment has deteriorated clearly since the 1960s while in the United States the number of jobs has continually increased. Table 7 demonstrates that Finland and Sweden attained record high employment rates in the 1980s. Despite the 1990's crisis, Finland's employment rates remained higher than the average for the other EU countries and in Sweden it even equalled that of the United States.

Table 7. Employment rate: ratio of employed to population aged 15 – 64

	EU	USA	Finland	Sweden
1961-70	65.2	62.8	73.6	72.4
1971-79	63.2	64.6	70.6	76.3
1980-89	60.0	67.8	72.7	79.6
1990-99	59.8	72.7	64.4	72.0
2000e	60.9	74.9	66.8	71.8

Source: OECD.

Figure 3. Employment rates



It is possible that a naive examination of emergence of new technologies and job creation may lead us to the conclusion that most Western countries have simultaneously experienced both a sizeable and long-term rise in unemployment rates and rapid technological development after the start of the 1970s. However, it should be remarked that rapid technological development is not the same thing

as productivity growth. Actually, the recent varve of innovations have not been accompanied by a faster rise in productivity but, on the contrary, a slowing down of productivity in the Western world since the 1970s. It is a source of surprise to many that the speed at which productivity accelerates has not been faster although technology has developed at dizzying speeds through the years 1975 – 1999.⁸ Development has been especially fast in the information technology sector. However, the widespread introduction of computers has not led to a reduced need for labour (any more than the paperless office). The explanation for this paradox lies in the fact that the volume of investment in information technology as yet amounts to a very small part of total investments and capital stock.

On the basis of the past experience, it may be said that huge differences exist between countries regarding the levels of employment. On the basis of this observation, one might conclude that the rise in unemployment is not a structural necessity. Rather it would appear that employment levels can be influenced by national policy. The fact that favourable employment trends have been achieved in countries with different institutions (Sweden and the USA, for example) demonstrates that differences in employment cannot be explained simply by structural or institutional disparities: in other words factors such as taxation and the scale of the public sector, collective bargaining in the labour market or its regulation, do not suffice to explain the obvious differences between countries. It is clear that unemployment does not stem from automation, technological development or the rise in productivity attributable to these factors. If it were so, unemployment should have been on the rise for the preceding two centuries because technological development has occurred before; actually, productivity has been on the rise in Western countries as a trend from the end of the eighteenth century.

Despite the rapid development of technology, productivity growth has slowed since the 1970s. Unemployment began to rise in the OECD countries following the slowdown in productivity (See Table 8).

Table 8. Unemployment and the rise in productivity in OECD countries

	Unemployment rate	Productivity growth	Investment growth
1960-69	3.1	4.0	6.4
1970-79	4.4	2.3	3.8
1980-89	7.1	1.8	3.2
1990-99	7.2	1.4	3.1

Source: OECD.

⁸ In the well-known words of Robert Solow, the revolution in information technology is visible everywhere but in productivity statistics.

What then are the likely reasons underlying high unemployment? There are, of course, many. The significance of the tight macroeconomic policy prevailing in Western Europe since the start of the 1980s should not be underestimated. The employment situation in the USA has improved continuously and it is no coincidence that both financial and monetary policies there have been less restrictive than in European countries. The relatively low real interest rates, and the increases in public spending (mainly defense) and tax breaks of the early 1980s are an indication of this. A consequence of this expansionary macroeconomic policy has been the chronic foreign deficit situation of the USA. A similar style of growth-oriented but likewise inflationary policy based on the increase of foreign debt was applied in Finland and Sweden until the end of the 1980s. Subsequently, from the beginning of the 1990s, Finland's and Sweden's economic policies became strict in the manner of other EU countries.⁹

Differences in macroeconomic policies do not adequately explain all the differences in employment levels between countries. Other factors that influence employment include the operation of the labour market, good market and housing market as well as the incentives created by of the social security and tax systems.¹⁰

Also linked to the growth of unemployment in Europe is the mismatch between the demand for and supply of labour. This may be partly due to the rise in skill demands placed on the labour force. The labour market position of a unskilled labour force has weakened in most European countries. In the United States, this was seen primarily as a reduction between relative and absolute pay differentials between different skill groups while in Europe it took the form of unemployment. The underlying factors are believed to be skill-biased technological change and free trade with countries where standard of living costs remain low. The problem has been exacerbated in many European countries by the high taxation on earnings and a reluctance on the part of the labour force to relocate. However, the influence of such factors is not entirely unambiguous. It has been difficult to find strong evidence in favour of the skill-imbalance hypothesis, especially when there are countries which have managed to avoid such problems. Instead of the individual factors, more crucial from the standpoint of higher employment levels may well be the predictability of economic policy with the institutionalised special features and stability in the economy.

⁹ The relevance of macroeconomic policy and aggregate demand as ultimate determinants of employment is emphasised by Blanchard and Summers (1986) and Ball (1999) among others. Blanchard and Summers compare the long-term mass unemployment in Western Europe to the 1930s depression in the USA, ending in a huge increase in aggregate demand at the start of the 1940s. According to Ball, the reduction in unemployment in some countries is explained primarily by a rise in demand.

¹⁰ The influence of such factors has been studied by Layard, Nickell and Jackman (1991), Pohjola (1998) and Kiander (1998a) among others.

The credibility of the structural unemployment explanation is undermined by the fact that considerable disparities in employment levels exist between countries that are similar in other respects. Although all industrialised countries have faced the same structural changes (new technology and globalisation), the results in terms of employment and unemployment have differed greatly.

Unemployment seems also to have a self-perpetuating dynamic. If unemployment increases somewhere due to a transitory shock, the change can soon become permanent. The reason for this so called hysteresis is that the self-correcting mechanisms of economies gradually adapt to high unemployment; taxation rises due to increased spending, languishing unemployment passivates and marginalises the unemployed, while unemployment becomes an acceptable way of life among subcultures. In such a case, it can be said that the economy and society have adapted to high unemployment; it becomes the established state of affairs and of itself does not change.¹¹

2.4 The future of work

Unemployment and economic policy

Full employment is a realistic possibility. There are no fundamental obstacles to the future establishment of a high employment rate. The fact that many countries have failed in this respect in the 1980s and 1990s does not imply that full employment should not be possible in future. One can point in evidence to many countries where high employment rates have been achieved and sustained - at the same time as the mean unemployment rate for EU countries remains high. While the deregulation and opening of economies (i.e. globalisation) emphasises the significance of competitiveness and may limit to some extent the freedom of national economic policy decision-making, it does not pose an obstacle to full employment.

Denmark bears examination as an example of a country that has achieved a high employment rate. The comparison is enhanced by the fact that Finland and Denmark are both prosperous Nordic countries with large public sectors and almost identical in the terms of population. Denmark's income level is about 25 % and its employment about 15 % higher than Finland's. Denmark's higher standard of living is only partly based on higher productivity; the more important is its higher employment rate. The first lesson to be learned from the example of Denmark is that similar countries can have very different employment situations (See Figure 4). The other lesson is that good social security and high taxation are not necessarily detrimental to employment. The tax rate in Denmark and the proportion of public expenditure to GDP as well the number of public sector

¹¹ See Kiander (1998b).

employees (especially in municipalities) are decidedly higher than in Finland. Comparing Finland with Denmark shows that there is further potential for employment particularly in the services (See Figure 5). Moreover, it can be concluded that the end of work of large-scale social exclusion are by no means inevitable.

It can be seen from Figures 4 and 5 that employment development was more favourable in Finland than in Denmark during the 1980s. Denmark was forced at that time to correct macro-economic imbalances by tight economic policy. Despite cyclical changes, employment in Denmark continually surpassed that of Finland. In Finland, on the other hand, the economic downswing turned into a deep recession in the early 1990s. Rapid employment growth after the recession shows that it there was no question of a structural crisis. The employment disparity between the two countries at the end of the 1990s was in Denmark's favour to the tune of almost 400,000 jobs. The gap is attributable entirely to Denmark's larger service sector.

Figure 4. Numbers of employed in Denmark and Finland 1977 - 1999, in millions

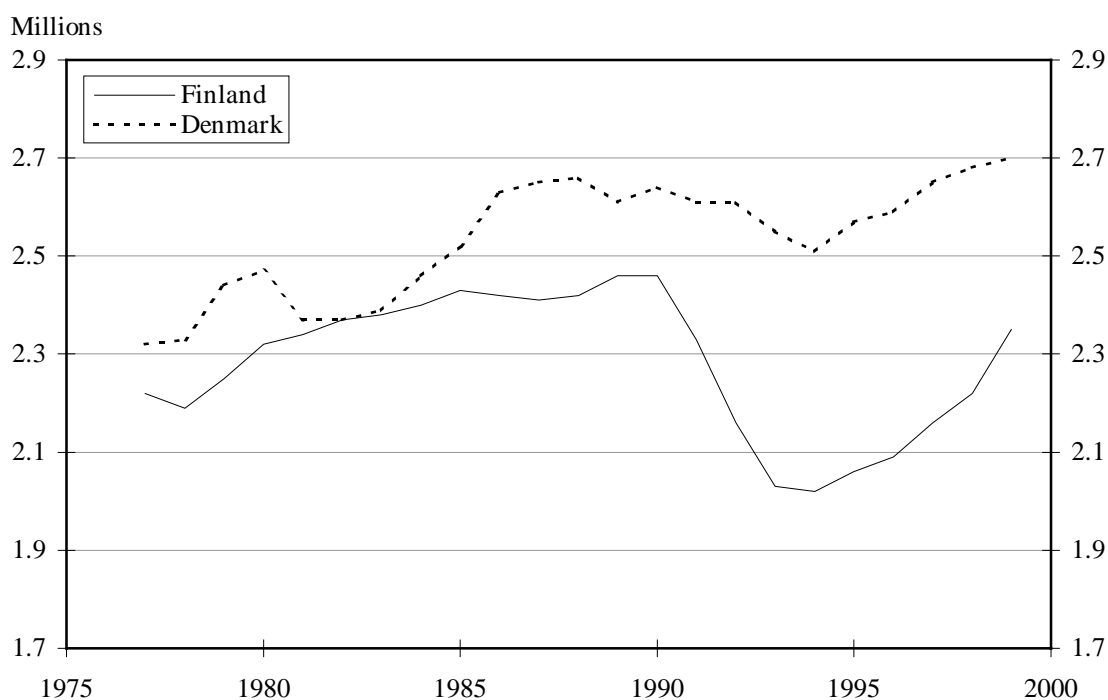
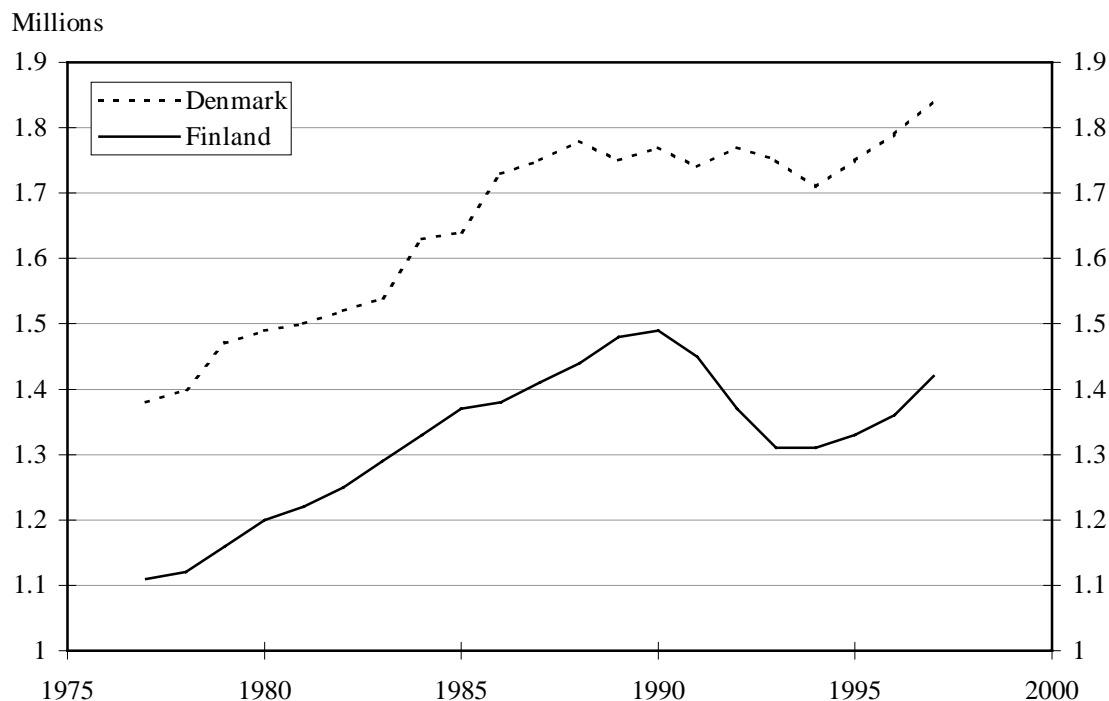


Figure 5. Numbers of employed in the service sector in Denmark and Finland 1977 - 1997, in millions



Sustaining full employment requires macroeconomic stability and successful economic policy. That also holds good for the future. Experience has shown that when unemployment stems from economic policy mistakes it can quickly reach high figures and easily tends to become chronic. However, for the establishment of full employment, it is not enough to prevent unemployment. In order for the greatest potential number of those of working age to be employed, there must in addition to sufficiently rapid and stable economic growth be also such institutions that support both labour supply and job creation.

Any external shock or missteps in economic policy can derail the economy from the full employment equilibrium for a long period.¹² Therefore one cannot predict with absolute certainty that full employment will be attainable. If the economy is basically sound, it will again gravitate towards full employment, despite interruptions. Among the gauges of a sound economy may be counted stability, competitiveness, confidence together with predictability and right incentives. The

¹² This happened in Finland and Sweden at the start of the 1990s (See, for example, Kiander and Vartia, 1998). There was an equally long macroeconomic crisis at the start of the 1980s in Denmark and the Netherlands. After extended periods of unemployment both countries have succeeded in reaching almost full employment again in the 1990s. (See Mäki, Romppanen and Virén, 1999).

task of economic policy is to prevent inflation as well as situations in which aggregate demand is sharply reduced.

Advanced welfare programs, large public sectors or even high taxation do not necessarily pose obstacles to high employment levels. They must, however, provide support for job creation and job participation. Good employment levels and a high degree of job participation are the indispensable prerequisites of the current Nordic welfare systems. Maintaining high employment will become even more crucial as the population ages.

Economic growth and structural change

What will be the engine of economic growth in the future? The growth is likely to be affected less by the growth of fixed capital stock and more by a growth in total factor productivity. The latter is built up through technological development and improvements of skills and education level of the labour force. In order to achieve these goals, there is a need for a sustained, deliberate policy that will ensure sufficient education and investment in research.

The total factor productivity rate in coming decades can be forecast to be around one per cent annually, which equals the long-term average estimate for industrialised countries. The labour productivity growth rate is likely to gradually slow down to one per cent. That will be the consequence, if capital stock growth slows permanently. This kind of change took place in Finland in the 1990s, when the level of investment plunged due to the recession. The growth rate of fixed capital formation remained moderate even after the recession. The slowdown in capital intensive growth may be due to increased demands on capital yield and an emphasis on profitability at the expense of growth targets. This development means on the one hand a gradual slowing down of the growth rate of aggregate output and on the other an improvement in employment-intensity of growth. The productivity of capital likewise will improve.

The automation of manufacturing, where labour productivity is likely to grown to the greatest extent, can be expected to progress more quickly in the future, too. There will probably be a trend towards reduction in the industrial labour force share as a consequence. Because it is more difficult to substitute for people in the services sector and productivity growth increases real income, there will probably be more demand for labour in the services sector. Especially in Finland, there is plenty of potential for more services because consumer expenditure has been lower here than in other industrialised countries.

Technological development does not pose a threat to employment, rather it increases real income. During the period under review, i. e. the next 30 years, it is probable that technological development will not succeed in supplanting people in the services sector. There is also reason to suppose that the new technologies of today will later become commonplace and more user friendly. Consequently,

we should not exaggerate the extent to which disparities in skill levels come between workers and the labour market and give rise to unemployment. Technological development makes more efficient use of resources and offers a wealth of possibilities reflected in an improved standard of living over the long term.

Although the structural change entailed by technological development and the international division of work will endure, there are grounds for believing that the nature of work and the labour market will not radically alter over the next 30 years. It is most likely that cleaners, nurses and plumbers will still be needed in 30 years time. It is probable that the need for health care jobs will increase with the ageing of the population. It is obvious that some industry sectors will be cut back and others expand is nothing new. Structural change has been a central part of economic development everywhere since the Industrial Revolution.

Labour productivity has been growing rapidly in Finland in past. This rapid growth has been caused by high investment rate and rapid structural change. However, one can expect that in future - during the next 30 years - the productivity growth will slow down in Finland. The expected slowing down of productivity growth will be most likely caused by the fact that Finland has achieved the productivity level of the advanced industrial countries. Productivity growth becomes more difficult at the very top where there is no more room for catching up. The other hindrance to growth is the anticipated continuation of change in the structure of the economy. The change in the structure of the economy in Finland during the last 30 years (See Table 9) has been far-reaching, mainly concerning a reduction in the numbers employed in primary production and manufacturing and an increase in the services sector. Comparison of Finland with the country at the forefront of development, i.e. the United States, shows that Finland's economic structure is still lagging about 20 years behind. If we assume that Finland will attain the current economic structure of the United States over the next 30 years, charting the future will be relatively simple (and nevertheless well-founded). At that point, three quarters of those employed will be employed in services. In 2030, the agriculture and forestry labour force will be half of what it is today and the ratio employed in industry will also continue its downward trend.

Table 9. Structure of the economy in Finland and the USA; Ratio of main industry sectors and employed

	Finland			USA		
	Prim. production	Processing	Services	Prim. production	Processing	Services
1971	21.2	35.2	43.6	4.4	32.9	62.7
1980	13.5	34.6	51.8	3.6	30.5	65.9
1990	8.4	31.0	60.1	2.9	26.2	70.9
1997	7.0	27.5	65.5	2.7	23.9	73.4
2010	5.5	25.5	69
2020	4	23	73
2030	3	20	77

Source: OECD (1971 - 1997), and estimate of the authors (2010 - 2030).

The anticipated demographic change supports this development projection. A population that is both ageing and prospering will probably demand more services, both private and public. The relative growth in services has its own bearing on the growth rate of productivity and aggregate production. Technological change and the automation of work will be fastest in primary production and processing. Labour productivity has traditionally been fastest in these sectors. But the proportional decrease of manufacturing will gradually slow the average productivity growth. Service sectors with more limited productivity growth potential will impinge even more on this average than previously. This will particularly apply to personal services.¹³

One of the key fringe conditions for future economic development is posed by projected demographic evolution. Just as in other industrialised countries, the age structure of the population in Finland is anticipated to rise over the next 30 years. This will entail a reduction in the working age population.

According to current population projections, an ageing population structure will result in a reduction in the size of the population of working age in Finland after 2010. How this will affect the number employed and the population's livelihood is not clearly defined. If work participation levels and employment rate remain unchanged, the consequence will be a lower employment. This will not necessarily be the case, however. It is quite likely, if labour supply becomes insufficient, that labour force availability will also turn out to be more flexible. In such circumstances, the work participation rate would rise in all age groups and the mean retirement age would be higher than at present. Moreover, a strong demand for labour would probably attract immigrants to the Finnish labour market.

¹³ For example, labour productivity is not something which symphony orchestras or dance theatres can raise. The same applies also to teachers and personal services.

3 Employment and the growth of production

3.1 The end of work or of unemployment?

The discussion of the future of work has become polarised. At one extreme, there is concern for the end of work in a country such as Finland. Even if production were to expand quickly, growth is not expected to bring new jobs and unemployment is spreading. This jobless growth has been a popular theme at seminars focusing on the future. On the other hand, unemployment problems are regarded as the natural consequence of slow growth and/or an indicator of the necessity for structural reforms. Current labour markets are expected to produce job opportunities at least at the same rate as hitherto.

Those concerned about the rise in chronic unemployment, such as Ari Ojapelto and Jeremy Rifkin, consider that countries with high cost levels such as Finland have already lost the struggle for jobs. Employment levels are based on the global development of markets. Companies with no national ties are owned by faceless financiers and always seek the most advantageous location for their production. Industrialised countries are now left with design level production demanding only the highest professional skill and lowly paid, service occupations in direct contact with customers that are typical of the fast food sector. Other kinds of service are obtained through the Internet, wherever they happen to be. Manufacturing, programming and other transferable tasks are done in countries with low wages.

The solutions put forward for unemployment problems range from shortening working hours and sharing work up to redefining work so that some job activities in the third sector (such as sports clubs, religious communities and other non-profit associations) which were previously done in free time and without reward would be now compensated. Both alternatives could improve statistical unemployment figures but not necessarily resolve the real problem of poverty. Potential expansion of the third sector is not very likely in Finland unless it takes over municipal jobs.

Although it is hard to point to research that is in support of the end of work, the claim lends itself to intuitive belief: "in the long term it may well come about because the overarching aim is the maximisation of company shares". This kind of development is borne out also by individual examples of company behaviour. Companies downsize their organisation without concern for employment levels and use the newest technology that saves work. Based on company or sector specific examples, the phenomenon describes mostly structural changes in the economy, which have always happened. A macrolevel check of many countries indicates quite the contrary - that there is a rise in employment creation of production growth levels (Romppanen - Valppu, 1997).

3.2 The link between production and employment

The belief in the dissociation of increased production and employment may be based partly on the observation that the same long-term increase in production in various countries has been linked to very different changes in employment. In the period 1975 – 1995, production increased in the United States at an annual rate of approximately 2 ½ % and employment at 1 ¾ %. The same percentage growth in production in Germany increased employment annually by only one half per cent. In Spain and Finland, an equally rapid growth rate saw no increase in employment whatever. This does not prove the dissociation between growth and employment, but rather that the effect of growth on employment will differ enormously between countries.

When we look at individual countries, it is hard to find one where a change in production does not also explain changes in employment levels to some extent. Changes in production over the same year go a long way to explain changes in employment, for instance in Finland and Sweden and in the US and the UK. For Austria and Germany, on the other hand, the explanation does not hold up as well.¹⁴ The explanatory power improves for most countries, if we take into account delays in adjusting of employment levels. (Romppanen - Valppu, 1997).

Table 10. Extent to which changes in employment are explained by changes in production in some countries 1975 - 1995¹⁵

Country	Change in production in the same year	Average of changes in production in the same year and the previous year
Finland	69	94
UK	54	85
USA	80	79
Sweden	58	71
Netherlands	30	67
Ireland	42	49
Germany	33	27
Austria	2	17

Source: Romppanen - Valppu (1997).

The bigger OECD countries (G7 countries) have been researched with respect to whether the link between employment and production changes in the long term. (Padalino - Vivarelli, 1997). The hypothesis is that the link may have been

¹⁴ This may be due to the fact that the period includes the oil crisis years of the 1970s, when the link between changes in production and employment may have been exceptional. For example, there seems to be an obvious link in Germany's case for both 1960 - 1973 and 1980 - 1994 (See Table 11).

¹⁵ Coefficient of determination (per cent) in an equation in which changes in employment are explained by changes in production.

stronger prior to the 1973 and 1979 oil crises than later. The period before the oil crisis 1960-1973 is called the Fordist period, after the production method then most widely used. The 1980-1994 period is called the post-Fordist period. The research results do not support the hypothesis any better whether they are applied to the overall economy or just to industrial production, where growth without creating jobs is suspected of gaining a foothold.

Table 11. Correlation between annual changes in production and employment in the G7 countries

Country	Overall economy		Manufacturing	
	1960 - 1973	1980 - 1994	1960 - 1973	1980 - 1994
USA	0.60	0.91	0.88	0.84
Japan	0.10	0.29	0.68	0.54
Canada	0.65	0.88	0.62	0.74
Germany	0.78	0.77	0.69	0.73
France	0.45	0.83	0.48	0.72
Italy	0.41	0.67	..	0.55
UK	0.46	0.62	0.50	0.73

Source: Padalino - Vivarelli (1997).

The link between changes in production and employment is positive for all countries and in most instances quite obvious (correlation approaching one). It is often alleged, contrary to what was anticipated and in public, that the link did not weaken in the post-Fordist period after both oil crises. Apart from a couple of exceptions, the link has been strengthened at the overall economy level as much as manufacturing level. The link between total production and employment in Japan remains fairly weak, even if it has grown stronger. While the link is more obvious in manufacturing, it has been weakened somewhat .

The fear that growth does not create jobs or even eliminates them cannot be justified statistically. It may be explained by the fact that increased production has remained inadequate from the employment standpoint. The slowdown in production evident in many countries after the oil crises of the 1970s is the fundamental reason for the "end of work". Increase in productivity has not accelerated but it poses a threshold for production growth the crossing of which only increases employment. When there was more labour force available, production should also have increased more quickly than the employment threshold, so that unemployment would not have ballooned.

Table 12. Production growth needed to assume employment in certain countries 1975 - 1998

Country	Employment threshold of production growth
Ireland	3.5
Finland	2.4
Germany	2.2
UK	2.0
Netherlands	1.7
Sweden	1.6
USA	0.8

Source: Romppanen – Valppu (1997), Table on page 22 updated.

The demand for increased production from the standpoint of employment has been much higher in European countries than in USA, where an annual increase in production of less than one per cent sufficed to keep employment at the same level. Because the manpower supply in the United States increases rapidly, partly due to immigration, it necessitated a more rapid increase in production there too, in order to prevent an increase in unemployment. The employment threshold in European countries has generally revolved around 2 %. In a country undergoing a rapid structural change such as Ireland, the threshold is higher. Finland too has needed a production growth of well over 2 % to maintain the employment level.¹⁶

Those concerned about the end of work do not necessarily suspect any disruption between production and employment. They think that raising production above the employment threshold is not desirable, because they fear it will lead to an ecological catastrophe. Rifkin, for example, has expatiated on the destructive effect of the current economic system not only on the employment rate but on the environment. He regards the work-sharing and expansion of the third sector as desirable from the employment standpoint. (Rifkin, 1995).

3.3 Is job creating growth any longer possible?

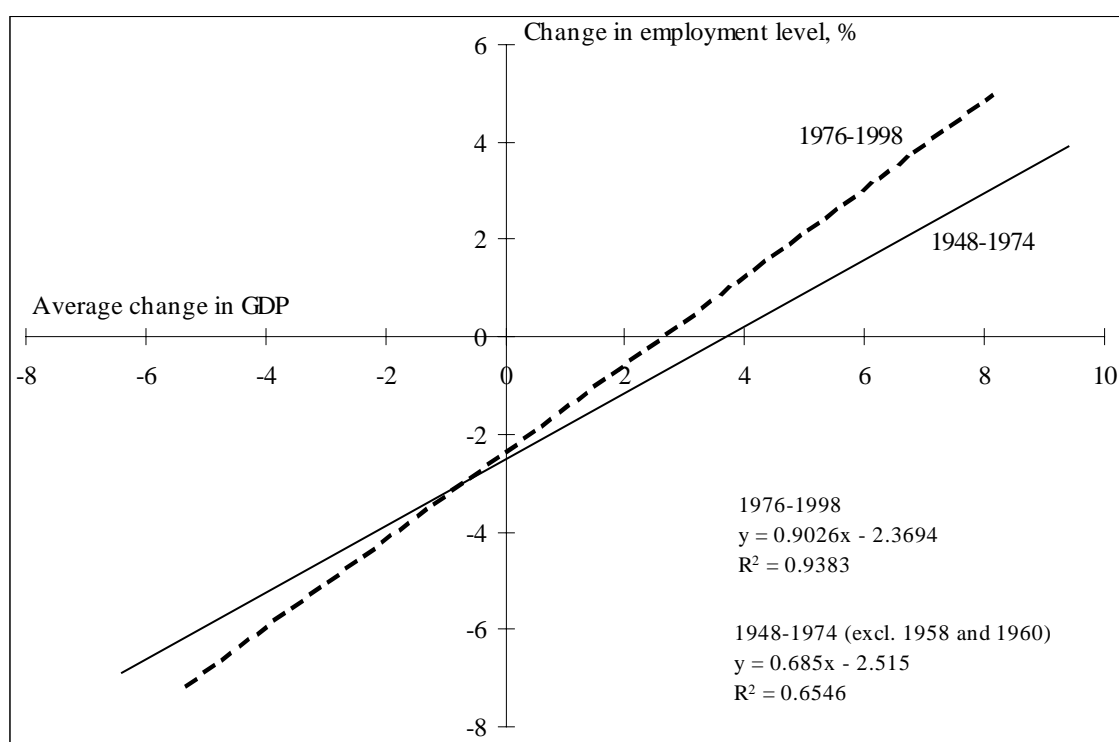
When assessing the future prospects for employment, two things must be distinguished. Is the link between production and employment in Finland changing from what it used to be and secondly, is it possible to maintain the growth rate of production that would be enough to guarantee high employment? The latter point has been studied from the global standpoint in Chapter 2 and we

¹⁶ The period under review in Finland includes the recession at the start of the 1990s. According to Sauramo (1999), productivity growth in 1992 - 1994 was exceptionally rapid compared to production development due to the elimination of inefficient workplaces and jobs. This raises the employment threshold with respect to the whole period. The link between production and employment, according to Sauramo, has reverted to "normality" following the recession.

will return to it with regard to Finland in Chapter 4. Here we consider the likely development of the link between changes in production and employment.

History speaks for a reduction in the employment threshold. If the period since the war is divided into that preceding the oil crisis and that following it, we see that the employment threshold has been lowered. Annual growth of about 2 ½ % (as a two year average) was sufficient to maintain the employment level after the mid-1970s, whereas the figure needed to be 3 ½ % in 1948 – 1974. The sensitivity of employment to changes in production likewise increased (the regression line became steeper) and the link between the two became firmer (enhanced explanatory power of equation).

Figure 6. Changes in production and employment levels 1948 - 1974 (excluding 1958 and 1960) and 1976 - 1998¹⁷



The increased sensitivity of employment to changes in production (the steepening of straight line in Figure 6) can be explained by a more open economy and more competition. To these may be added the change in methods of production,

¹⁷ Changes in employment explained by the average of changes in production in the same and the previous year. Years 1958 and 1960 are excluded from the first period as obvious outliers, probably due to continuity discrepancies related to the employment series. The pivot year 1975 was also excluded, because the production series was interrupted at that juncture. Information based on Employment Policy Research 199 (Tiainen *et alia*: Työvoima 2017. Time Series Analysis Project.)

apparent in the reduction of delivery times and greater economising on storage, as well as a rise in fixed time employment relationships and various kinds of organisational changes. Such changes are reflected in the way that a given shock in production causes a bigger change in employment than previously.

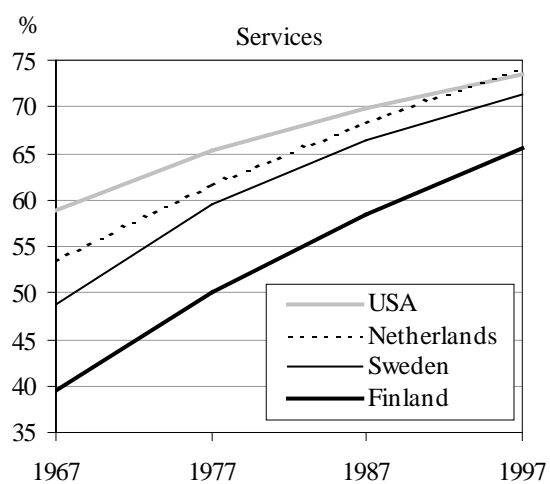
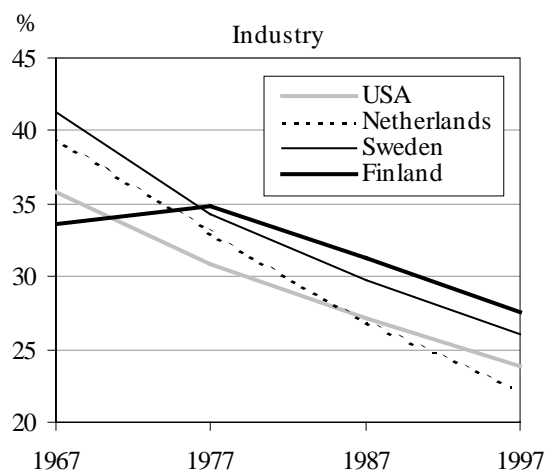
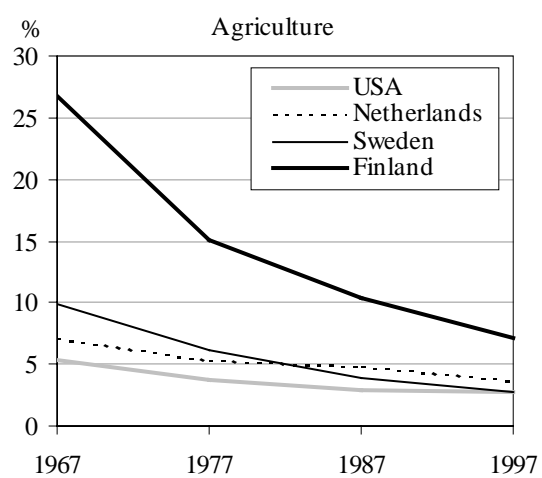
It was thought that participation in the EMU would make difficult to adapt to country-specific fluctuations in production. In a single currency situation, real labour costs cannot be adjusted by means of a national exchange rate policy. Instead, this must be brought about by changes in nominal wages. If they are rigid downwards, employment will be adjusted.

A second factor which may intensify the reliance of employment on production is the more efficient use of capital. If inefficient workplaces and work phases are eliminated more judiciously than before, no labour hoarding should result from a recession. The economy will no longer "tolerate" inefficient units in the way it did earlier. The effort to maintain a high yield on capital would be reflected in the rapid eradication of unprofitable jobs.

A natural explanation for the lowering of employment threshold (leftward motion of the line in Figure 6) is a change in the economic structure. Growth in agricultural productivity and the reduction in the labour force became so marked during the most intense phase of industrialisation (the first period in Figure 6) that it was difficult for expanding sectors to offer jobs at the same rate. Now the agricultural share is small and although the reduction in the labour force has spread to industry as well, this need not be the case. Contrary to what occurred in agriculture, the growth of production in industry does not have a limit imposed by domestic demand. For quite some time, the problem with agriculture was overproduction, for which a remedy was sought by supporting its rationalisation. Both had the effect of reducing the need for the labour force.

Comparison with other countries also supports the lowering of employment threshold in Finland. Figure 7 compares the economic structure of employment in Finland with the USA, the Netherlands and Sweden. In the latter countries the employment threshold of production growth is low (See Table 12). In Finland, the share of those employed in agriculture is at least twice that of the comparative countries. It is at the level it was in the Netherlands thirty years ago. The share of those employed in industry in Finland was still below that of the others in 1967 but, unlike in their case, it rose during the next ten years and has since remained higher than in those countries. Finland trails the others in industry by about ten years. The share of those employed in the services in Finland is two thirds, equal to what it was in the Netherlands and Sweden ten years ago and in the USA twenty years ago.

Figure 7. Share of those employed in agriculture, industry and services in certain countries 1967, 1977, 1987 and 1997



The change in Finland's economic structure trails that of the low employment threshold countries by several years. Due to this, marked growth will be probable in Finland, for example in the services sector. It is likely that this will be accompanied by a fall in the average number of hours worked partly due to more opportunities for part-time work which will boost the number actually employed.

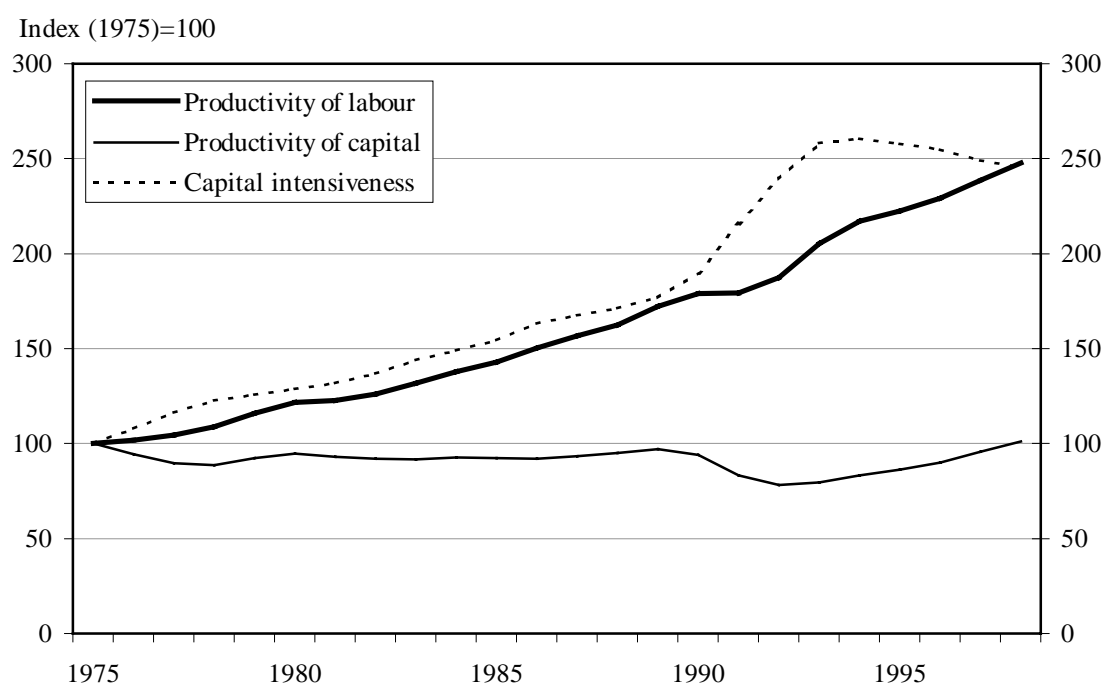
In the light of history and international comparison, it is obvious that the change in the economic structure supports the growth alternative of greater employment. Finland's high employment threshold by comparison with other countries is only partly explained by the slimness of its service sector. The rapid rise of real labour costs has also had an effect. It has raised the capital intensiveness of production.¹⁸ Can we expect a change in this respect?

It is difficult to distinguish the cause and effect relationship between a rise in productivity, higher labour costs and capital intensiveness. Finland is a country which has seen a fairly rapid rise in productivity. Whereas earnings growth follows the development of productivity, real labour costs have risen sharply. In the circumstance of a regulated money market, on the other hand, the real interest rate remained negative for long periods. The "cheapness" of capital compared to labour could be one reason for rising capital intensiveness.

The capital intensive industrial structure can also be explained by Finland's natural resources, i.e. the processing of wood and ores. In any case, it is obvious that a rapid rise in labour costs presupposes a rapid rise in productivity so that competitiveness does not weaken. Productivity growth, especially in basic industry, can be driven by bigger and stronger machines than before and up-to-date equipment. Whether for one reason or the other, the employment threshold of production growth in these circumstances has become high.

¹⁸ Differences in employment thresholds between countries is partly explained by differences in their economic structure and the pace at which their labour costs increase. (Romppanen - Valppu, 1997).

Figure 8. *Productivity of labour and of capital and capital intensiveness in market production 1975 - 1998, Index (1975) = 100*



Source: Tuottavuuskatsaus, Statistics Finland 1999.

Capital intensiveness increased very quickly during the recession when labour input fell sharply but capital stock did so much more slowly. When employment levels started rising again, capital intensiveness also took a downward turn for the first time in a quarter of a century. This may indicate a more permanent trend. The yield requirements of capital have grown and the productivity of capital has risen since 1992 by more than a quarter. The earlier weak productivity of capital is reflected in the fact that only in 1998 was the productivity level of 1975 exceeded.

The collective wage bargaining agreements of 1996 - 1999 were based on very moderate wage increases. This can be regarded as a symptom at least of the fact that Finland has realised fully the kind of behaviour that low inflation conditions demand in labour market negotiations. To the extent that the rise in real labour costs remains slower than before, the capital intensiveness of the production structure (and growth in labour productivity) can slow down and the employment threshold likewise become lower.

The real uncertainty lies in the development of technology. Productivity growth has recently been observed to accelerate in the USA and, in the estimation of some, this has been interpreted as a consequence of technology development. Businesses have only gradually learned to take advantage of the labour saving potential of new technology. The production paradox (productivity growth

slowed down in the 1970s and 1980s, even though more and more investment went into new technology) would have been, from this standpoint, nothing more than a sign of sluggishness. It is a reflection of organisational and other delays deriving from the practical application of the new technology.

Together with delays stemming from the application of the new technology, the production paradox can be explained by the fact that the effects of new technology are primarily seen in an improvement in the quality of products. This is difficult to take into account when measuring production and so underestimating productivity growth has widened as economic areas that are difficult to measure have expanded. A corresponding paradox was observed during the widespread introduction of electricity at the turn of the 19th and 20th centuries. Productivity growth was slow for a long time, although the lighting problems of factories and other workplaces were resolved and electrical motors were quickly introduced into production (Webb, 1998).

It is still too soon to assess whether productivity growth in the United States in relation to the growth in production has permanently gained pace at the level of the overall economy. The increased productivity growth may just reflect a general acceleration of economic growth. If that is the case, technological development will support a rise in the employment level and improve the general growth potential of the economy. The widespread application of the new technology may have freed bottlenecks in the economy with the result that economic growth has been able to continue over a long period without a rise in inflation. Naturally, the exceptionally long, inflation free, growth period in the United States (and Finland) may be due mostly to reasons other than factors relating to technology. Estimates will rest on surer ground after the next recession (which will probably happen eventually).

The other basic question related to employment is where the jobs will be located in future. Will the global competition for jobs result in Finland's losing such jobs? The drain of jobs from Finland to cheaper, more market accessible or otherwise advantageously situated countries is evident from the fact that most new jobs in Finnish multinational companies arise outside Finland. Some of these companies even simultaneously reduce the number of jobs in Finland. In the wake of the big companies, progressively smaller subcontractors also are forced to transfer part of their production abroad in order to retain their position as subcontractors.

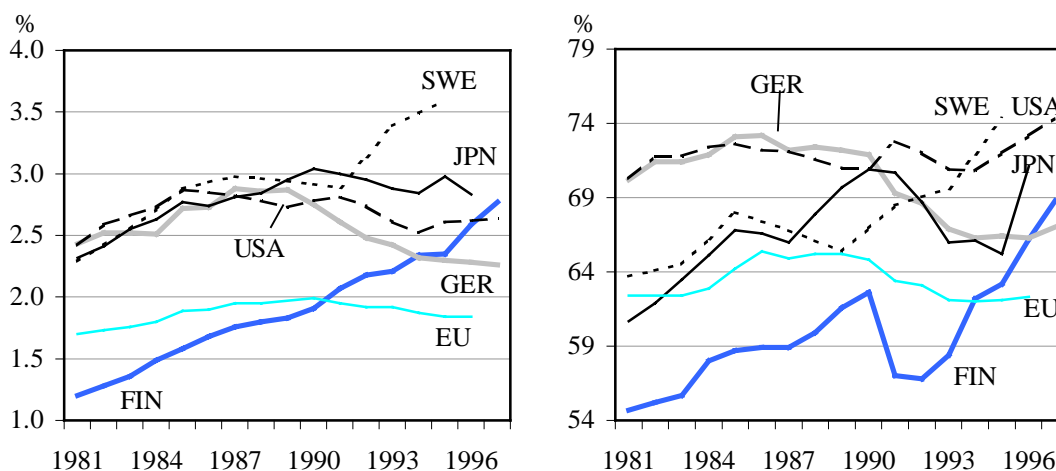
In the circumstance of a regulated money market, such development features would reduce investments made in Finland, because the financing of foreign investments would displace domestic investments. The situation has now changed, however. Investments are limited more by the limitations of human resources than that of capital, financing can always be found for attractive projects. The most serious threat to the development of Finnish employment is whether innovative operations will continue to be found here. Consequently, it is

important that big these companies do not capture all the research and product development resources and that both human resources and venture capital is available for start-up companies.

The talking point recently has been that employment is no longer a serious objective and arises only as a topic in formal speeches. The business strategy strongly favouring owners that has quickly gained a foothold in Finland may have increased the dependency of employment on economic shifts. Previously, profits and dividends varied sharply as economic conditions fluctuated. Ownership was mainly domestic and long-term and the yield over the economic cycle was what was important. Now, ownership is spread internationally and many owners seek profits in the short term. An attempt is made to keep share value increases and dividends stable in order to pacify shareholders. This may require continual rationalisation and restructuring. Changes can be expected in this regard also. The slogan that staff is the company's most important resource takes on a definite meaning when companies wake up to changes in the labour market (See Chapter 5). Job training, continuing professional education and other personnel development programmes will become more common.

The employment growth in Finland could be based on a strategy that is already quite well established. The amount and quality of training should be maintained at a high level and technology investment by companies and society should be comprehensive. Investment in research and development in Finland has been continually increased. The ratio of these investments to gross national product is about 3 %, which is one of the highest in the world after Sweden. The corresponding share in EU countries is one third less on average and the figure has not risen during the 1990s, unlike in Finland.

Figure 9. Ratio of research and development expenditure to GNP (on left) and business sector share of expenditure on research (on right)



Source: The State Technical Research Centre.

The business sector share of research and development expenditure in Finland in the 1990s was still small by international standards. It has grown rapidly and is now well above the EU average. The rise results from the brisk growth of research investment in the business sector. The state has also increased research expenditure but much less quickly than companies. Investment by the business sector is of critical importance from the standpoint of economic exploitation and hopefully will yield new products with a competitive edge.

The critical factor affecting a strategy which highlights human capital is the desire to learn. The dropout level in Finland has not been a serious problem so far and the educational yield is high by international standards. Against this background, ambitious educational objectives are understandable. The level of education and how it is apportioned to each field of study must be continually assessed (See Chapter 5). Society is still in need of a plentiful, performance capable labourforce. The motivation of the over-educated for such work is poor. If, on the other hand, the number of university level graduates is restricted, it may not be possible to ensure that education will answer a wide range of needs.

Employment can also be supported by reducing labour taxes and still preserving a broadly affluent society. The latter alternative would require a fairly high overall tax rate which would place more emphasis on taxes on real property and the environment than at present. The advantages offered by such a change would have to be worth their price in the eyes of companies and educated people so that international tax competition does not eat away the tax basis.

The economic scenarios in Chapter 4 are based on the estimate that an annual growth of less than two per cent will suffice to increase employment in the first decade of 2000. The employment threshold would decrease, in roughly the same way as occurred previously over post-war period in Finland. The employment threshold would remain somewhat higher than, for example, in the Netherlands and Sweden at present. It is also possible that the sensitivity of employment to production shocks will continue to increase.

4 Population, employment and real income

This chapter will first examine the population by age group from the start of the last century to the middle of this century. Using this and the historical ratio of the employed to the population as a whole, we will assess the development of the employed until the year 2030. When a hypothesis is posed for the changes in productivity calculated per person employed, the development trend anticipated for production and real income until the year 2030 will be constructed.

4.1 Demographic development by age group

In the Finland of half a century ago, record big cohorts, more than 100,000 babies were born. As the decades rolled by, migration and mortality altered the relative size of these age groups considerably. The big age groups in today's population can be simply defined as being commensurate with the actual population by recourse to a stationary population¹⁹ (Parkkinen 1999).

If the age groups larger than one tenth of the stationary population were regarded as big age groups in 1999, then they comprise those born in the years 1945 - 1967. (Figure 10). Persons born in those particular years now living in this country represent an "excess" population of 350,000 persons.

The small age groups in today's population are the cohort of the fewer children born in 1942 due to war and those born in 1972 - 1973 and 1997 - 1999, as well as all those born before 1938. Compared to the stationary population, more than a quarter of a million are "missing" from the latter group of older and elderly persons. Only with the increase in the number of pensioners in coming decades will the age groups in the country's population "recover" and correspond to current life expectancy levels.

Demographic development is based on the population projection to the year 2030 (Statistics Finland 1998), which the Government Institute for Economic Research has extended using the same parameters until the year 2050 (Parkkinen 1998). In this calculation, overall fertility will remain at the current level, life expectancy of the new-born will lengthen by over a year each decade and there will be a net immigration of 4,000 persons annually.

It is obvious that the actual demographic trend will differ sooner or later from the that projected. The future never fails to surprise us.

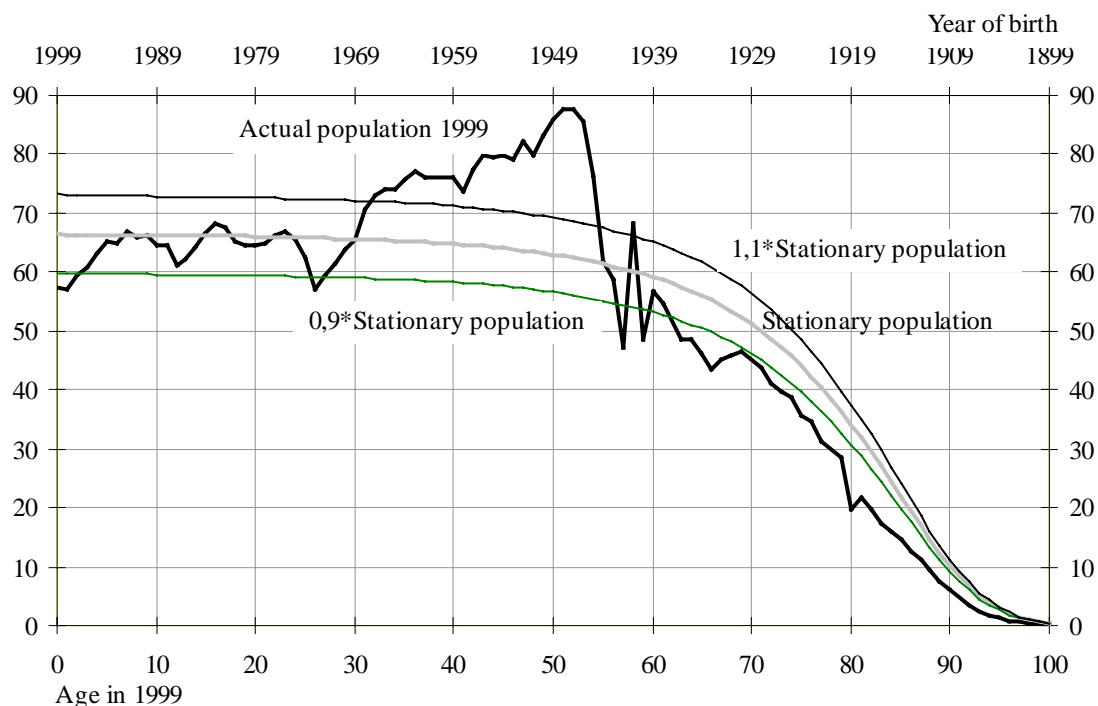
¹⁹ The numbers of births and deaths in the stationary population remain equal and migration is not a factor. If 66,000 children were born every year and the mortality rate by age group were to remain exactly what it was in 1999, then in one hundred years time without migration the stationary population would number 5,170,000 persons as shown in the accompanying Figures, or the same number as in the actual population in 1999.

Statistics Finland projects that the fertility rate will stay at its current level, although in most prosperous countries it does not come up to the level it is in Finland. There could be surprising changes in the mortality rate also, for example due to the proliferation of drugs.

Hardest of all to predict is the net immigration level. Emigration in net terms accounted for a total of 300,000 persons leaving Finland in the period 1945 - 1980. The net immigration rose by 100,000 persons in the period 1981 - 1999. It is important from the standpoint of the national economy that new immigrants will also be educated people, whose work will improve the living standards of the existing population.

Based on the above population forecast, the number of people in Finland would increase by more than 100,000 by the start of the 2020s, but would then begin to decrease. The population would number less than five million in 2050, a couple of hundred thousand fewer than at present. Compared to previous development, the population count would be exceptionally stable during the succeeding half century.

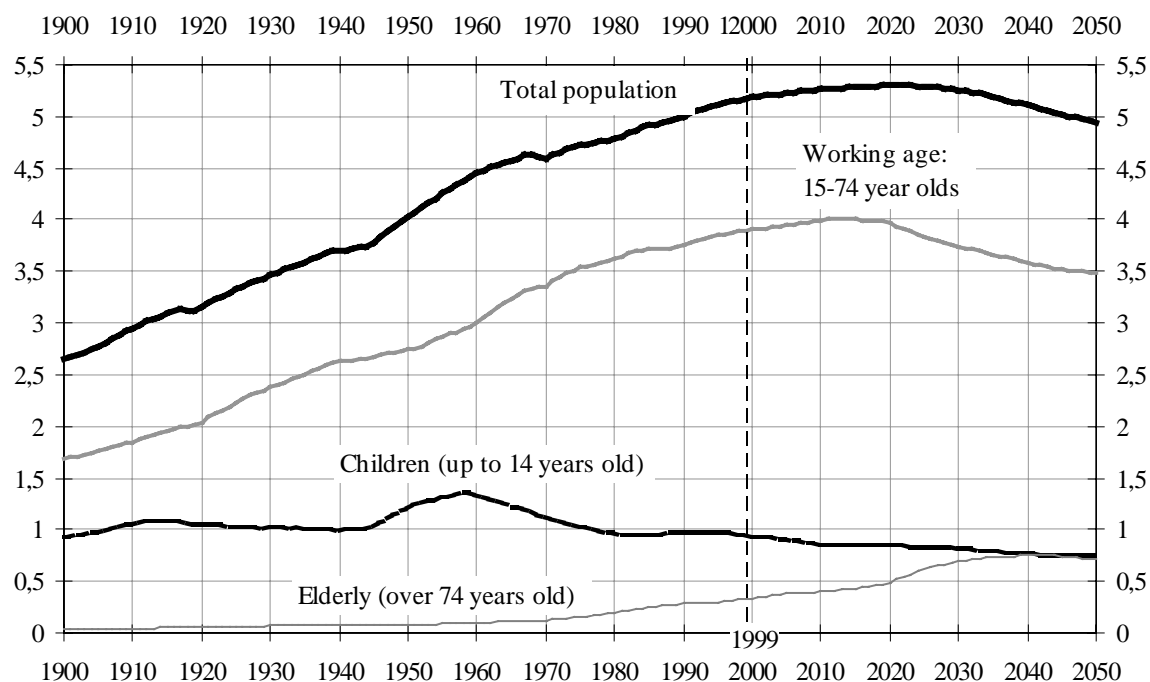
Figure 10. Actual population and an equally large stationary population according to age with a 10 % variation in stationary population in 1999 per ' 000 persons



The number of children below 15 years of age in Finland is well under one million, equal to the number there was one hundred years ago, when the average

population was half of what it is today. Children were most numerous at the end of the 1950s, numbering more than 1.3 million (Figure 11). The number of children will also fall in the future so that after another half a century, they will number a couple of hundred thousand less than at present.

Figure 11. Demographic development in Finland by age 1900 - 2050, in millions



The working age population denotes 15 – 74 year olds in the way defined in the research project on the labour force (Statistics Finland 2000). There were almost 3.9 million persons of working age living in Finland in 1999, more than at any time previously. After a further decade or so, there will be more than 4 million such persons. Following that, the number of people of working age will start to diminish, as the bigger age groups reach the age of 75 years and over.

There are 330,000 persons over 75 years old in the country, or nearly nine times as many as one hundred years ago. The number of the elderly will double in another thirty years. Thanks to the continually increasing life expectancy rate, the number of the elderly will also increase after the biggest age groups have aged. This will mean that their number in the year 2050 will exceed 700,000, insofar as the above population forecasts hold good.

Although it appears that the total population figure in coming decades will remain exceptionally small, the age structure will certainly continue to change. The proportion of the elderly (over 74 years old) will double to 13 % in the next

three decades and will rise somewhat even after that. The proportion of Finnish children under 15 years old is currently 18.3 % but will be 15 % in the target year. Three out of four Finns are currently of working age. Their number in proportion to the population will dwindle so slowly that in another half century they will number over 70 % of the Finnish population.

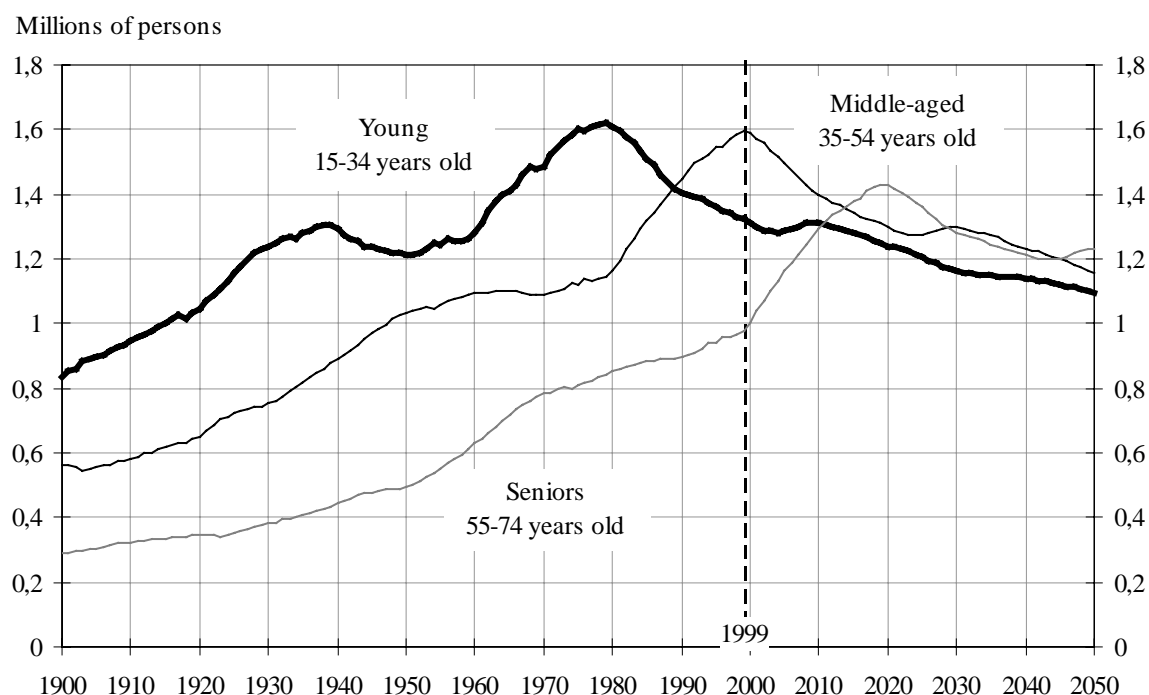
Figure 12 demonstrates the demographic development of young, middle-aged and senior persons of working age from 1900 - 2050. The young, by which is meant 15 - 34 year olds, reached their highest number of 1.6 million at the end of the 1980s. Since the largest age groups in the current population are all over 35 years old, the number of young persons of working age is no longer more than a good 1.3 million. It will decrease slowly in future as well. After a couple of decades, there will be roughly one hundred thousand fewer young people and in fifty years time over 200,000 fewer young people than at present.

There were 1.6 million persons living here aged 35 - 54 in 1999, or more than ever before. According to the population forecast, this middle-aged group will diminish after a couple of decades such that they will number two hundred thousand persons fewer than at present. In the middle of the century, they will number 400,000 fewer persons than at present.

The number of persons of senior working age, or 55 - 74 will practically double to almost one and a half million within a couple of decades, when the bigger age groups reach this age bracket. Later, the number of person in the senior age group will also dwindle such that that they will number two hundred thousand persons fewer than at present.

According to Statistics Finland (2000), 82 % middle-aged persons, 58 % young persons and 23 % seniors belong to employment population. With the population forecast of a decrease in the numbers of middle-aged and young persons and an increase in the number of seniors, the employment will diminish, even if the working age population remains the same.

Figure 12. Number of young, middle-aged and senior persons of working age 1900 - 2050, in millions



4.2 Population and unemployment by region

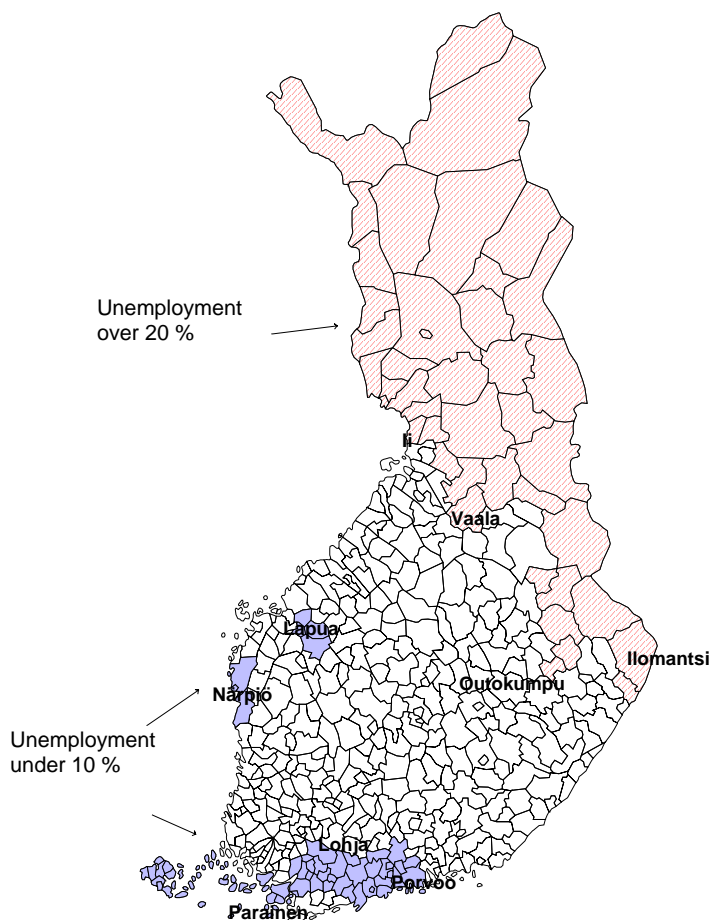
In Finland there exist 452 municipalities, what EU has grouped into 85 NUTS 4 level regions. When businesses plan investments or the labour force looks for jobs, NUTS 4 level forms the natural regional unit.

The accompanying map shows in the northern and eastern parts of Finland unemployment rate was over 20 % in 1999. A total of six per cent of the labour force and 10 per cent of the unemployed live in this area of greatest unemployment.

NUTS 4 level regions with less than 10 % unemployment rate are marked on the map as areas with the lowest unemployment and they are to be found on the southern and western coasts and the archipelago, besides Helsinki and its environs. A total of 30 % of the labour force and only 20 % of the unemployed live in these regions.

In recent years, employment levels have rapidly improved in growth regions, in many of which there is a lack of professionally skilled workers in many sectors. While unemployment has diminished in regions of high unemployment, there are still marked regional differences in levels of unemployment. It is to be feared that these regional differences in employment levels will not be reduced even in coming years.

Figure 13. NUTS 4 level regions with the lowest and highest unemployment rates in 1999



4.3 Actual and potential working population

Since changes in the labour markets cannot be reliably forecast, the development of employment is analysed below by means of schematic calculations. The number of those employed is estimated by means of the number potentially employable, calculated as the sum resulting from potential employment rates by age group and the number of persons living in Finland. It is unnecessary to use unemployment statistics in such calculations as they are not comparable over the long term due to recurring changes in compiling statistics.

Using annual labour force data produced by Statistics Finland, the number of men and women employed for each year is calculated in five year age groups and then is calculated annual employment rates by age groups. Potential employment rates

are determined by means of these calculated employment rates, selected as the highest annual employment rates by age group for men and women in the period 1980 - 1999.

The potential employment rates for each age group of men and women given in Table 13 are clearly defined as higher than the actual employment rates in 1999. Employment levels of the youngest and oldest men shows the greatest collapse during the last twenty years. A fifth of young men under 20 years old were at work in 1999 compared to more than a third of them in 1980. The least contrast between the potential employment rate and the 1999 employment rate, a difference of 3 percentage points, obtains for 55 - 59 year old women. In 1990, 59 % of them were employed.

Table 13. Employment rates in age groups of five years for men and women in 1999 and the highest annual averages for the period 1980 – 1999 in percentages

Age group	1999		Highest 1980 – 1999 (= potential employment rates)	
	Men	Women	Men	Women
15–19	21.5	23.2	35.4	35.9
20–24	57.2	53.4	69.6	67.4
25–29	81.1	65.6	90.1	81.6
30–34	86.3	73.1	93.4	84.4
35–39	87.3	78.5	93.7	88.2
40–44	85.5	81.3	93.0	90.1
45–49	82.1	82.4	90.1	89.3
50–54	78.2	78.7	84.2	82.4
55–59	54.7	55.8	63.8	59.0
60–64	23.3	20.0	41.1	31.8
65–74	5.7	1.9	19.7	6.7

When the corresponding working age population is multiplied by the potential employment rates for men and women by age group, these results are obtained by totalling the number of potentially employed in Finland. In 1999, the number of potentially employed was 2.66 million and the number actually employed was about 2.3 million. The difference between the potentially employed and the actually employed was therefore about 360,000 persons, a figure approximating the number statistically calculated by the Ministry of Labour as unemployed and seeking work.

The number of potentially employed at the start of the 1960s was actually less than the number actually employed. At that time, the actual employment rates for young and old people were averaging higher than the potential employment rates,

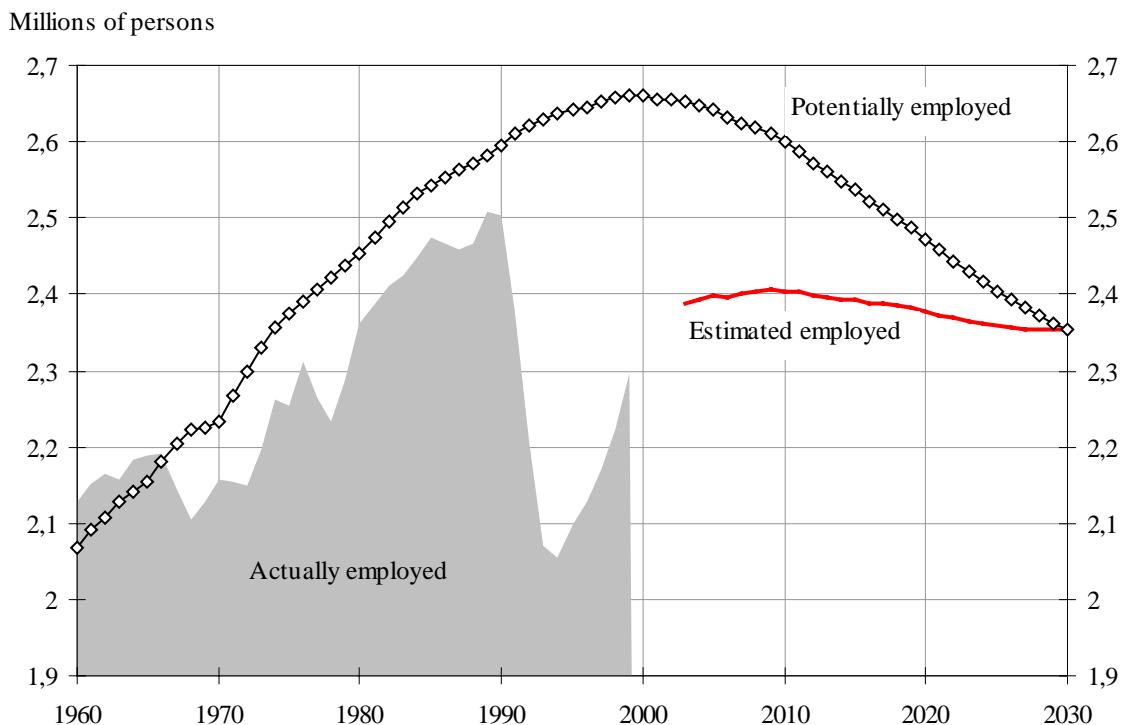
which in this report were determined for the period 1980 - 1998 by means of the annual employment rates for the largest age groups.

Today, the number of potentially employed is higher than ever. The labour force in reserve estimated by difference between potentially employed and actually employed will diminish in the future, as the larger age groups gradually reach ages with lower employment rates. In thirty years time, there will be 300,000 less potentially employed than there are now

The number of actually employed is expected to equal the number of potentially employed in 2030. It is anticipated that the difference between the potentially and actually employed will steadily diminish between 1999 and 2030, when the ratio between them will be one.

The projected development of employment levels until the year 2030 is shown in schematic form in Figure 14. According to this development, there would be almost 2.4 million employed in Finland during the next three decades. This would mean there would be more than a hundred thousand less employed in the labour force than before the big recession, but still the number would exceed the figure for the year of lowest employment (1994) by more than 300,000.

Figure 14. Actually and potentially employed 1960 - 2030, in millions



An expert group in the Ministry of Labour recently produced a long-term forecast for employment (Ministry of Labour 1999). According to its calculations, there

would be a good 2.3 million employed until the start of the 2020s, or about the same number as forecast above.

The policy programme of Prime Minister Paavo Lipponen's Government II (Prime Minister's Office 1999) contains the following statement: "It is the aim of this government that the number of new jobs shall grow rapidly and that the number of employed in proportion to the total working age population of Finland shall approach the 70 % objective suggested in the EU's employment guideline." The working age population in this programme refers to persons 15 - 64 years old.

The ratio of the employed to the number of 15 - 64 year olds in the population was 66 % in 1999. In 1989, this ratio was 75 %. If the development forecast for employment drawn up by means of the figures for the potentially employed were to come about, there would be 76 % of 15 - 64 year olds employed in 2030, or roughly the same number as before the big recession.

In other European countries, the ratio of the employed to the number of 15 - 64 year olds in the population varies greatly. In 1997 (European Commission 1999), this ratio was as little as 49 % in Spain and as much as 78 % in Denmark. The figure in Finland at the time was less than 64 %.

Based on such verification, the projection for the employed up to 2030 appears to be realistic. In favourable circumstances, even more of the labour force could be employed than this forecast suggests. For example, the number of older persons employed would obviously increase, if there were a fairly remunerated demand on the labour market for their professional skills. With the lengthening of life expectancy, the employability of older persons will probably increase so that, based on their improved health, more and more of them could continue to work in jobs for longer than they do at present.

The experience of some countries (and of Finland earlier) demonstrates that employment rates of 75-80 % are feasible in principle. Besides raising the employment rate, increasing the average hours worked annually will raise work input in the national economy.

In common with other prosperous countries, Finland's standards of education for children and young people have been improving for many decades. Therefore, the older the people in the current labour force, the weaker their average level of education (Statistics Finland 1999b). It is a matter of concern from the standpoint of the future reform of the labour market that the number of potentially employed young persons is diminishing all the time, while the number of potentially employed middle-aged persons has also begun to drop at this time.

The number of potentially employed young people was calculated by means of the higher employment rates of 1980 - 1999 as being at most 1.15 million in 1979. In 1999, the number of these people living in Finland was 923,000, but in thirty years time there will be more than one hundred thousand fewer. Measured

in this way, the young labour force continues to diminish, but at a slower rate than in the previous two decades.

The number of potentially employed middle-aged, or 35 - 54 year olds, currently living in Finland is almost 1.42 million – more than ever before. In 2030, they will number a quarter of a million fewer.

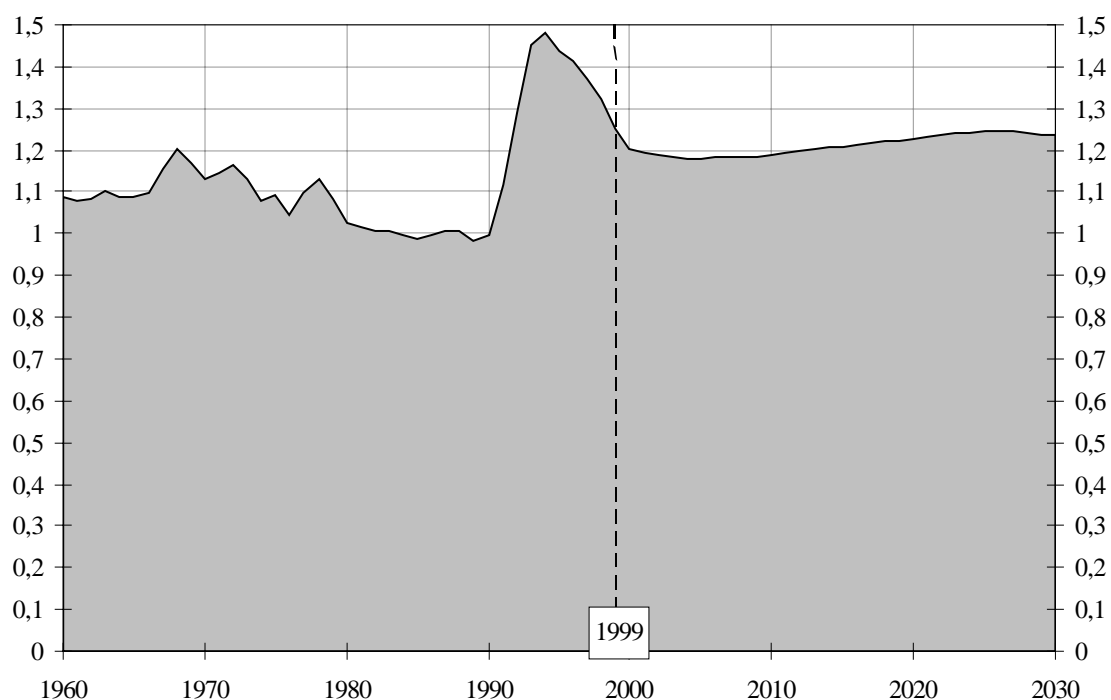
In future, only the senior labour force will be available in greater numbers than currently. This change in the age structure of the labour force may make the labour market sluggish, as rarely do seniors succeed in training themselves for an entirely new profession or transfer to another employment region.

The support burden on the national economy is measured by its dependency ratio, by which is meant the proportion of the non-working population to those who are employed. Thus, the dependency ratio indicates the number of persons whom employed persons must support besides themselves.

Before the big recession, half of the Finnish population was employed, i.e. the economic dependency rate was around one (Figure 15). When unemployment rocketed, the economic dependency rate at its highest in 1994 reached almost 1.5. At that point, every two working Finns had to support five others who were not working.

In 1999, the dependency rate was 1.25, which is considerably better than five years earlier but equally as bad as it had been before the recession. If the number of the employed in future were to develop as it is schematically estimated above, the dependency rate would remain at its present level for the coming decades. If the employment policy is even moderately successful, the dependency rate will not even weaken when the larger age groups reach pensionable age.

Figure 15. *Economic dependency rate, or proportion of the non-working population in Finland to those who are employed 1960 – 2030*



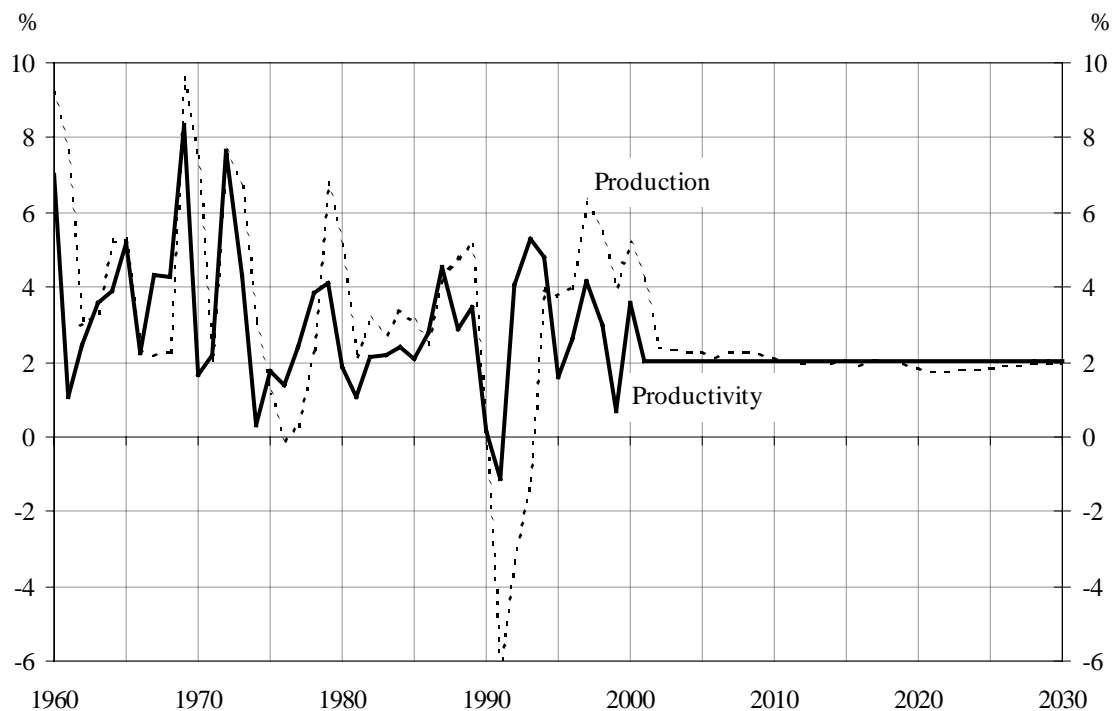
4.4 Production and real income to 2030

Total production measured in terms of gross domestic product can be calculated by multiplying the number of the employed by the productivity per employed person. The number of employed is obtained in advance from the employment forecast. A simple hypothesis about productivity until the year 2030 is posited below.

Changes in productivity calculated in the terms of gross domestic product per employed person have fluctuated enormously since 1960. The variation for the time period in question ranges from -1 % in 1991 to 8 % in 1969. During a forty year period, it improved on average by three per cent annually.

According to the Economic Survey (Ministry of Finance, 2000), the productivity growth rate will be over 3 % in 2000. After that, the productivity growth rate is anticipated to be 2 % up to 2030 (Figure 16).

Figure 16. Annual changes in productivity in terms of production and the employed for 1960 - 2030, %



According to the Economic Survey, the volume of the gross domestic product will increase 5.2 % in 2000 and 4.2 in 2001. The production growth rate calculated by means of the employment forecast and the productivity expectancy will slow down, such that production will increase by around two per cent up to 2030.

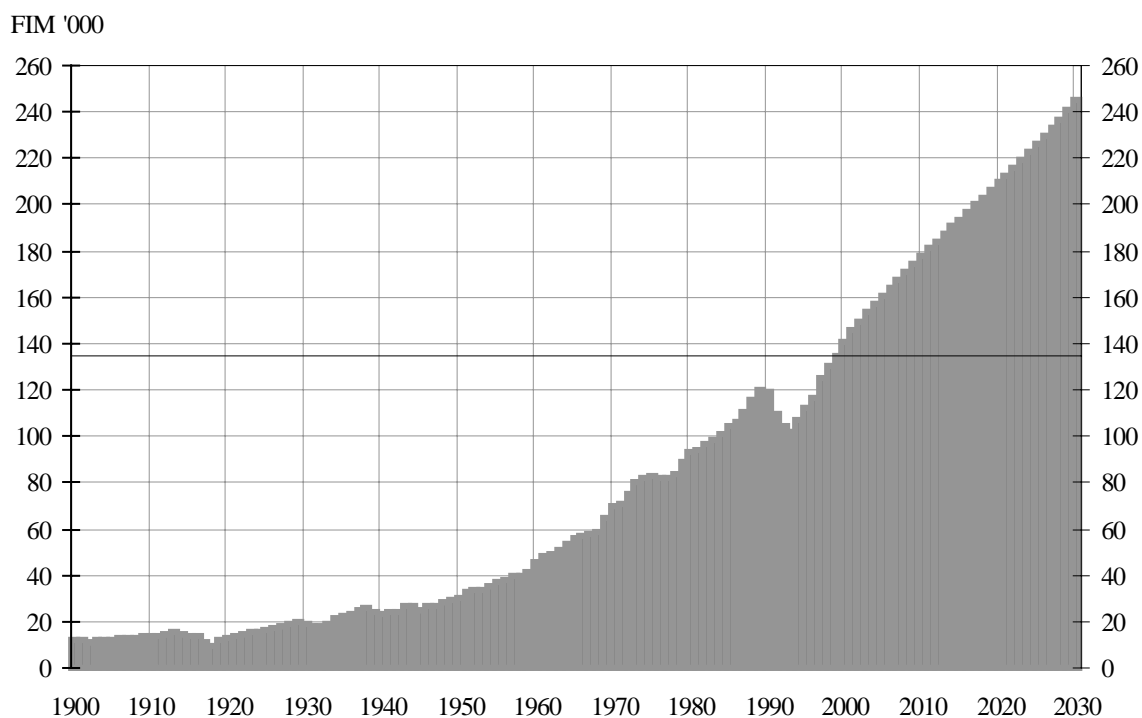
During the last 30 years, the volume of the gross domestic product, despite the energy crisis and the sharp recession has also grown by an average of three per cent annually. According to the above calculations, this growth rate will remain at two per cent during the next 30 years. For the sake of comparison, it may be stated that economic growth in the 20th century was never as slow during any 30 year sequence. The average 30 year growth rate was 2.4 per cent at its slowest and 4.9 per cent at its fastest.

When all net financial transfers abroad, from interest expenditure earned to overseas development aid, are deducted from the gross national product, the gross domestic product is left. When this is changed by means of the gross domestic product price index into cash in 1999 and is divided by the number of inhabitants, the real gross domestic product available to the national economy per person is obtained. It serves as a measure of economic well-being.

According to Statistics at Finland, the gross domestic product in Finland in 1999 was FIM 135,000 per person. Our real income per person calculated in this manner has more than doubled during the last 30 years and increased elevenfold

since the start of the century. If the above calculations hold good, the real income per person in Finland will be 80 % higher in 2030 than during this year.

Figure 17. Real gross domestic product available per person 1900 - 2030, at 1999 prices



4.5 Unemployment side by side with a labour shortage?

The schematic calculations based on population projections and productivity forecasts demonstrate that Finland's overall production can, relying on its own labour force, continue to grow at a reasonable rate for decades. There will not be a general labour shortage, if even tolerable care is taken to improve productivity and make employment conditions congenial for older people.

In 1999, a quarter of a million Finns were unemployed, according to Statistics at Finland and one hundred thousand more were unemployed job seekers, according to the Ministry of Labour. Despite this, there is a continuing shortage of staff in growth centres for various sectors. Mass unemployment and a labour shortage even occur within the same locality.

The large-scale structural change that took place in the last decade during the deep depression divested the labour market of hundreds of thousands of people for whose knowledge and skills, despite sustained economic growth, there appears to be no demand even at low hourly wage rates. For this very reason, many older people and even those in the middle-aged group are waiting until they

qualify for a pension. The luckiest among them still have jobs but others, either unemployed or temporarily employed, are reduced to dreaming about their pension years. On account of their poor educational background, only a few of them can really be trained at reasonable cost for growth sector professions.

Structural change appears to be continuing. In many companies, staff – generally those who have been working there for decades – are being let go. At the same time, there are complaints of a labour shortage in information technology and other growth sectors. Students are being drawn from educational institutions to work in these growth sectors on attractive terms.

This structural change may come to be permanent feature of the joint European Union market that is due to be broadened. Production moves from one region to another and the structure of production likewise changes. In future, the labour force will also move from one country to another and from one profession to another. Salary and price differences in the Euro area will lessen and even language will hardly be a hindrance to the regional and professional mobility of the labour force in a business world where the use of English is on the increase.

Unemployment affecting those with a poor basic education may remain at a high level, even if less numerous age groups replace the more numerous ones in the working world. The market demand for knowledge and skills acquired many decades ago can vanish in an instant as hundreds of thousands of people learned to their dismay during the steep recession.

Adjusting to the labour market can be improved by continuing education. Despite this, unemployment and shortage of labour may remain as a pair of scourges on both the Finnish and other European markets.

5 The future of the labour market and the public sector

The development of employment and the public sector are linked to each other in a variety of ways. This connection derives primarily from the financing of the public expenditure. During the decades following World War II, a welfare model was developed in Finland giving the public sector a big role to play in producing social welfare. The work load of social welfare is broader than it is in many other EU countries, for example in relation to family support. Such a situation presupposes that there is enough funding for social security and a high employment rate, since the financing of the welfare state rests above all on earned income and on taxes levied on consumption. The increased pressure on public finances deriving from the change in the age structure of the population emphasises even more strongly the significance of high employment in this context.

The development of the labour market is reflected not only in the sustained financing of the public sector but in the responsibilities and tasks related thereto. Changes in the labour market influence both the public education system and the work load of social welfare. These influences are not only one-way, because taxation and social welfare also have a bearing on the operation of the labour market. Here we first deal with the connection between employment and the financing of the public sector and only thereafter with the connection between certain tasks of the public sector and the future development of the labour market.

5.1 Employment and public finances

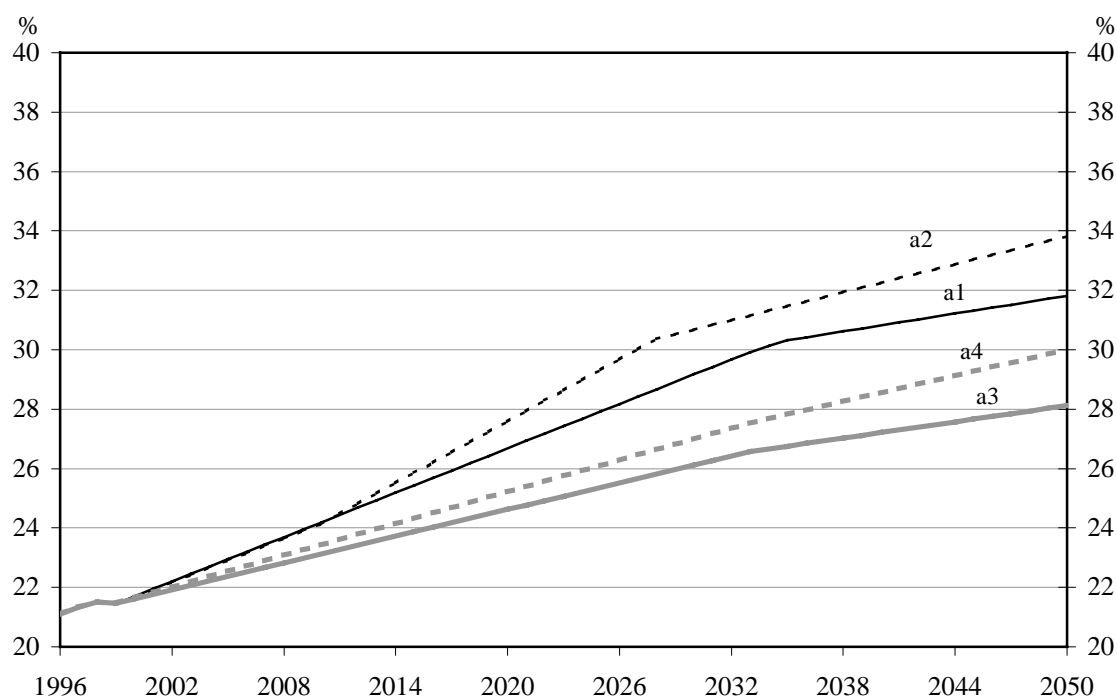
The significance of the future development of the employment rate from the standpoint of the public economy is exemplified in the figures recently published by the working groups established by the Central Pension Security Institute (1999) and the Economic Council (1998).

The starting point for calculations is that the ageing of the Finnish population is taking place at a record pace. Currently, the share of the population over 64 years old is lower than the average in EU countries, but in 2030 this ratio will be the second highest after Italy. Differences in the size of the age groups have been known for a long time and an effort has been made to prepare for it in the funding of pensions. Changes in economic development, the labour market and pension systems dictate the strain to which the public economy is subjected in a time of major demographic change. The lower effective retirement age, the crisis in the economy of the 1990s and the reduced employment levels are basic factors which have turned the anticipation of "baby boom" generation reaching pensionable age

into a more critical issue than before. A key issue to be examined is the significance of the future employment rates in this context.

The pension contributions will clearly rise in the coming years and decades. How strong this tendency will be is difficult to estimate as it depends on several imponderable factors, some being subject to decisions that have still to be made. The contributing factors include the future development of the economy, the future employment rate and especially how the effective retirement age will develop, future funding policy, the yield on pension funds and changes in life expectancy. The range is quite wide as the rise in pension contributions has been variously put at between three and nine per cent over a 25 year period. Various calculations seem to yield a fairly uniform picture of the importance of the future employment rate, however.

Figure 18. Pension contributions 1996 - 2050, as a percentage of the wage sum in various alternatives



a1 = low labour participation, annual productivity growth 2 %

a2 = low labour participation, annual productivity growth 1 %

a3 = increased labour participation, annual productivity growth 2%

a4 = increased labour participation, annual productivity growth 1%

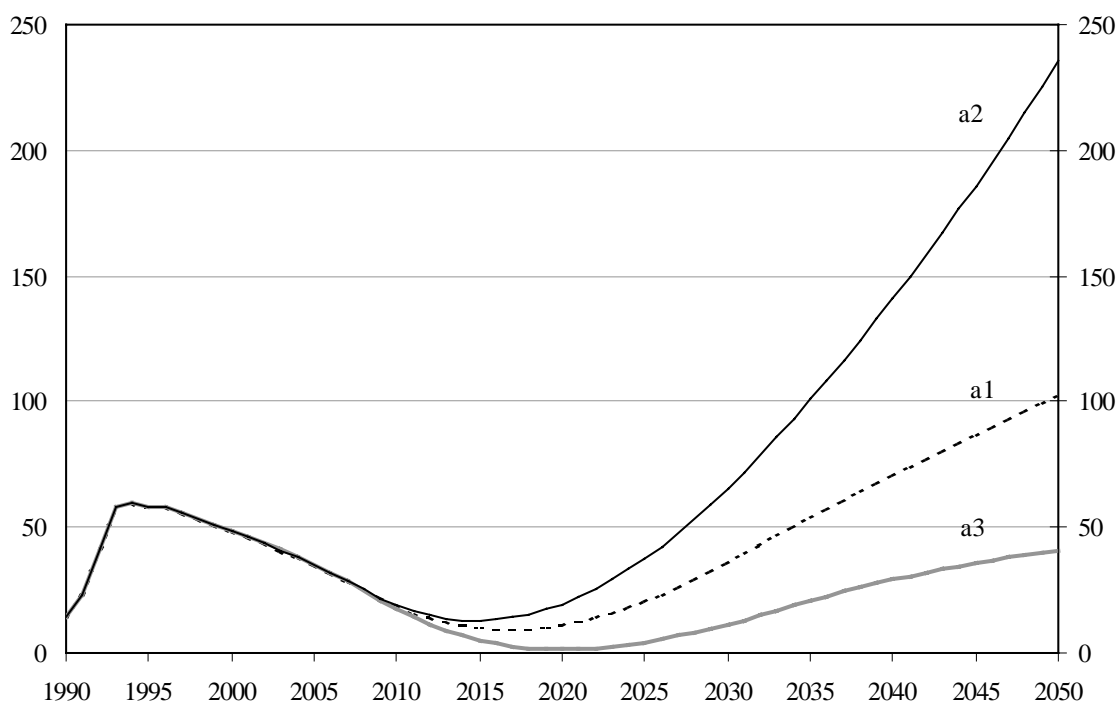
Source: Public Finances in the Twenty-first Century (1998).

According to a report by the Central Pension Institute on pension expenditure and pension contributions, a delay of three years in effective retirement age would make the average pension contribution about 4 percentage points lower than in

the basic scenario in the long-run. The annual upward pressure on contributions would be only 0.1 percentage points, while the pressure would be 0.25 percentage points without the delay in the effective retirement age.

The working group report of the Economic Council "Public Finances in the Twenty-first Century" imparts a fairly similar picture of the positive influences consequent on increased labour participation by the aged employees. The annual upward pressure on pension contributions for various alternatives of labour participation and productivity is considered in Figure 18. Higher labour participation is approximately equivalent to the deferment of the retirement age by 2-3 years. The development of the public debt for the various alternatives is considered in Figure 19.

Figure 19. Gross public debt in relation to gross national product, %



a1 = low labour participation, annual productivity growth 2 %

a2 = low labour participation, annual productivity growth 1 %

a3 = increased labour participation, annual productivity growth 2%

Source: Public Finances in the Twenty-first Century (1998).

Variations in the pension contributions will produce a significant difference in the coming overall tax rate. This rate will be subject to an upward pressure of about 1.5 percentage points during the next two decades due to the increased load of pension contributions. The upward pressure on the tax rate originating in this way would remain at about one percentage point lower, if the effective retirement age were successfully delayed by three years. Since there will be pressure in

coming years to lower rather than raise the overall tax rate, the amount of the tax burden consequent on pension contributions is an issue to be taken into account. The higher the increase in the tax burden, the greater the pressure will be to lower other taxes and the public expenditure financed through them. On the other hand, if the tax increase due to the burden of pension contributions is not offset by lightening the tax load elsewhere, the consequence will be a higher tax wedge. This eliminates the possibilities to use taxation as the key factor by which the future level of structural unemployment could be reduced.

In fact, the deferment of the effective retirement age is the key factor from the standpoint of increasing the employment rate. The problem facing Finland is the fact that the effective retirement age is low. The average retirement age dipped below 60 years in the 1980s. The unemployment problems of the 1990s brought great pressure to bear on the use of early retirement as a solution. In 1995, about 85 % of the over 59 age group obtained unemployment benefit, early retirement or some similar benefit, which is a high proportion by international standards (Viitamäki 1998).

Raising the effective retirement age is a stated objective of the government programme. The intention is to delay the average age for retiring from the labour market over an extended period by 2-3 years. This goal will be achieved both by operations relating to developing working life and by means of reforming pension systems.

How the labour market develops has a bearing on achieving the goal. The structural changes in the working life and the simultaneous ageing of the labour force continually nourish the popularity of early retirement. On the other hand, the future improvement in the average educational level may at least partly offset it. There seems to be a link between good education and a lower than average exposure to early retirement (Hakola 2000).

The ageing of the population is also reflected in the structure of public expenditure. The demand for health and social services increases with the increasing number of elderly persons and correspondingly, the demand for day care and educational services diminishes with a reduction in the number of children and young persons. The change in the structure of public expenditure naturally means changes in employment opportunities for these welfare sectors.

Table 14. The effect of the demographic change on public welfare services expenditure in 2010, 2030 and 2050 (1997=100)

	1997	2010	2030	2050
Educational services	100	96	88	80
Health services	100	112	134	133
- Health centres	100	113	140	145
- Specialist care	100	112	134	133
Social services	100	105	128	140
- Children' s day care	100	89	84	78
- Homes for the elderly, home service	100	123	185	221
- Other	100	97	91	93

Source: Public Finances in the Twenty-first Century (1998).

In the future, the ways of producing these services will also be given more attention than before. A fundamental question will be the nature of support offered to the employed so that they can manage to care for relatives, i.e. where the emphasis will be placed in the arrangements for children' s day care and elderly care. Should the emphasis be placed on services or on support for child care leave and the home care allowances? These support systems clearly differ in their employment effects. Taking a high employment rate as a goal, there are grounds for placing the main emphasis on public services.

5.2 Income differences and the public sector

Income differences have been growing in many Western countries during the last twenty years. There have been many different reasons for this development but there are also common features to be found (OECD 1998a). One fairly consistent feature is the effect that earnings have exercised. Earnings have almost invariably been a generator of income differences. Differences in earnings levels are in fact the major reason for the increase in income differences in most countries.

One of the consequences of globalisation and technological development in Western countries has been the dip in the relative wage level of low-skill workers. The reforms aimed at making the labour market more flexible can also be capable of exerting pressures that tend to increase wage differences.

The OECD Report emphasises that the critical factor affecting relative income levels and the poverty is the labour market position of the family members. Poverty is concentrated in families in which there is a weak connection to the labour market. The maturing of pension systems, on the other hand, means that poverty is being transferred from the elderly to the young and to families with children. In such circumstances, the working age population and their connection to the labour market has become more and more relevant for the analysis concerning poverty.

Growing differences in the factor income strengthen the need for systems which redistribute income, so that differences in disposable income will not be so strongly in evidence. This is limited, however, by the fear that systems for the redistribution of income, taxation and social security may exact too high a price on society. The social benefits and taxation can jointly bring about a situation in which the acquisition of extra earnings is no longer economical and such risks have been assessed *inter alia* in investigations made into income traps. The increase in income differences has also been accompanied by a concern over the negative incentive effects of the above systems. This in turn has strengthened the view that expanding social benefits cannot provide an answer to the problem of how to reduce income differences.

One of the solutions put forward would involve developing taxation and social security structures so as to support the employment particularly of the low-skill workers and those at risk to social marginalisation. Proposed models, some of which have been implemented in some countries, include tax reductions for the low paid and complementing earned income with income subsidies²⁰. The experience derived from such models from the standpoint of employment have been largely positive but they are not regarded as universally practicable. A precondition for their successful operation is the large income gap between the low paid and the well paid and a relatively low marginal tax rate.

Changes in the labour market are themselves reflected fairly immediately in the public sector. For example, it is conceivable that existing minimum wage restrictions might be dissolved. In such circumstances, the social security system will complement the living standards of low earners more often than before. The functioning of the labour market and the welfare model are closely connected.

5.3 The demand for labour and the challenges of training

Education has taken on an entirely new and central role in the economy as a whole. Success in international competition presupposes a more highly trained labour force and greater expertise than before, as education and the human capital are of crucial significance for research and product development, the creating of innovations and the assimilation of new technology

This is also reflected in the development of thinking in economics and a new understanding of economic growth. In the new growth theory, capital is understood in a wider sense than previously. The capital in this case comprises both material and human capital. Investments are not just investments in machinery, equipment and buildings, but also in expertise, research and product development and in a joint infrastructure.

²⁰ Examples of these include Earned Income Tax Credit (EITC) available in the United States, the Working Families Tax Credit in England and the Earnings Supplement Programme in Canada.

One of the underlying premises of the traditional growth theory is the hypothesis that the marginal returns to capital diminish. If capital stock in the economy increases by the means of new investments, the rate of return diminishes. This means that economic growth will slow down, since diminishing marginal returns are not an encouragement to increase production potential as much as before.

In the new growth theory, marginal returns can be constant or even increasing. This is comprehensible when the nature of "new capital" is examined. For example, it is typical of the research and product development that "knowledge creates knowledge". We can speak of the positive externalities of product development, for example. A new breakthrough is not typically restricted to the advantage of just one particular new product. Instead, it can set in motion a fresh innovation which will lead to the development of another product.

Correspondingly, education has a positive influence, not only on the level of individual earnings potential, but it also has wider positive influences at the level of society as a whole. Education has positive externalities, that is to say the growth of human capital of one individual can increase the productivity of the rest of the employees, etc. The significance of the positive externalities of education is that the yield gained by the individual from education is lower than the social return and the public expenditure on education is growth supportive. Correspondingly, public investments, for example on services, communications and public support for research, product development and education typically increase the rate of return of private investment and are expenditures that stimulate economic growth. When the marginal returns to capital do not diminish, capital stock and the economy can endogenously grow "limitlessly". There is at the same time a completely new strategic significance to investing in education.

The role of education and expertise is growing while the labour force is ageing. In Finland, the disparity in education level by age group is still quite marked with the result that the educational level enjoyed by young people is high by international standards and that of older employees rather modest. This means that the average educational level will improve quite rapidly as older age groups reach pensionable age.

Table 15. Educational level of 45 – 65 years old labour force in various countries in 1995 and 2015

	Less than upper secondary	Upper secondary	Tertiary
Finland			
1995	43.4	36.0	20.6
2015	17.9	56.2	25.9
Sweden			
1995	35.8	37.4	26.8
2015	14.7	54.3	31.0
Germany			
1995	15.4	58.1	31.5
2015	8.6	63.5	27.5
United Kingdom			
1995	27.6	51.3	21.1
2015	13.0	61.3	25.8

Source: OECD (1998b).

A structural change in the working life occurred smoothly in the 1970s and 1980s in the sense that younger age groups reaching the labour market found a job in the expanding services sector and older age groups ceasing to work withdrew from the shrinking industrial sector. The development was strengthened by widespread recourse to early pension options. The age groups reaching the labour market in future will be small and early retirement will be discouraged.

It is more and more often the case in a changing labour market that the vocational or other qualification obtained in one's early years are no longer sufficient, since professional qualifications lose their edge quickly. Arranging further education in mid-career will be necessary more and more frequently. This will raise the issue of how the cost of adult education should be distributed between the individual, the firm and the society. If the responsibility for the costs are left solely to private businesses, there may be a risk that adult education may not satisfy the needs of society as a whole. On the other hand, there is the danger that too generous support for adult and further education will act as a catalyst for a tax financed operation that more naturally belongs to the firms to finance. One possible rule of thumb is that public expenditure is directed towards education which would otherwise be most likely neglected. The candidate groups in question would be those with a poorer education and the employees of small businesses. An interest in further education also presupposes a sufficiently stable employment situation, so that the educational input would be of benefit to all concerned. Short employment contracts and a weak commitment between employee and business

reduces the investment in firm-specific training (Kiander, Pekkarinen & Santamäki-Vuori 1997).

The education of older employees has often been dogged by the fact that the way in which it is taught is not geared according to the needs of older labour force. Adult education has been more oriented towards younger adults whose basic education level is often higher, among other things. In future, the higher education of older employees will perhaps make the implementation of lifelong education an easier task.

The rapid change in the labour market has implications for the educational sector insofar as it is difficult to predict which sectors will grow. Another challenge to estimates about educational needs derives from taking into account the effect of the withdrawal of the large age groups from the labour market. New labour force is needed not only to satisfy the increase in the demand for labour but also to supplant those who retire. The increase in the demand for labour will run at about 20 % and the replacement need at about 80 % of labour force requirements by the year 2010 (National Board of Education 1999). The kind of education which supplants those leaving the labour force is typically vocationally based and educational needs answering the increased demand for labour are answered most typically by training in an institute of vocational higher education or at university.

Table 16. Median age and withdrawal rate in the biggest professional groups 1995 - 2010

Professional group	Median age 1995	Withdrawal in period 1995 - 2010	Withdrawal of those employed in 1995, %
Clerical work	39.7	49 000	33
Sales	38.9	52 400	37
Teaching, Educational	41.4	38 100	35
Agriculture	45.3	54 200	52
Social sector and Leisure sector	41.7	38 300	39
Technical planning, Management, Research	38.8	21 800	28
Catering industry	36.7	28 100	38
Nursing	40.1	28 700	39
Transportation	40.4	34 200	47

Source: National Board of Education 1999.

About 90 000 - 100 000 municipal employees will reach retirement age by the year 2010. Due to the increased need for municipal services, the demand will increase by about 20 000 employees. On the other hand, many key public welfare services have vacant jobs as a starting point. This situation is demanding from the standpoint of assessing education needs, especially when political decisions yet to be made have a bearing on future development. The assessment of educational

needs in coming years derive from the recommendation to reduce somewhat the number of starting places in education for the social affairs and health sector. The availability of places in this sector should again be gradually increased after the year 2005.

Then again, development can also include positive challenges. The considerable educational requirements that are envisaged can have the potential for eliminating segregation in the labour market, if the proportion of men can be increased in sectors mainly staffed by women and vice versa. In the information industry professions, it is not only a question of the sufficiency of an educated labour force, but the new qualifications include new skills like group work, customer service and communication skills.

6 Conclusions

Full employment in future is a realistic possibility in Finland. Although Finland suffered from high unemployment in the 1990s, there are no fundamental obstacles to the future establishment of a high employment rate. As examples of such high employment equilibria one can refer to the many countries where high employment rates have been achieved and are still maintained. While globalisation makes the economic environments more competitive it does not pose an obstacle to full employment.

Technological development does not pose a threat to employment, rather it increases real income. During the period under review, i. e. the next 30 years, it is probable that technological development is not going to reduce the employment in the services sector. Technological advances are not going to raise the skill requirements of labour force permanently. There is reason to suppose that the new technologies will become routine and more user friendly. Consequently, we should not exaggerate the extent to which skill mismatch give rise to unemployment. Technological development makes more efficient use of resources and offers a wealth of possibilities reflected in an improved standard of living over the long term.

While structural changes enjoined by technological development and the international redistribution of work will continue, the nature of work and of the labour market will hardly be altered radically during the next 30 years. Some business sectors will shrink and others will expand. However, such development has been occurring in Finland and in many other countries for more than a hundred years so that continuing change will not be a new phenomenon in the future.

The maintaining of full employment requires stability and growth-promoting economic policy. Experience shows that unemployment can quickly spread as a consequence of missteps in economic policy. Unemployment has tendency to become chronic. That is why implementing long-term goals for high employment presupposes the prevention of rise of unemployment in the short term. However, for the establishment of full employment, it is not enough to prevent unemployment. In order for the greatest potential number of those of working age to be employed, there must be sufficiently rapid and stable economic growth and the institutions that support labour demand and work participation must exist

Social security and high taxes do not necessarily stand in the way of high employment. They must, however, support job creation and participation in work. Good employment and a high degree of participation in work are indispensable prerequisites of the Finnish public welfare system. As the population ages, this will become more and more crucial. It is indispensable that the Finnish economy

reaches a high degree of employment in order for the popular welfare state system to be viable in the future.

During the next 30 years, ageing and the increase in the number of pensioners in the population will increase pension expenditure and greatly step up the demand for public welfare services. Due to demographic reasons the public expenditure will increase significantly after some years. We must prepare for this eventuality by maintaining large fiscal surpluses during the next years. It will not be enough, however, to collect fiscal surpluses. At the same time, we should endeavour to implement economic policies which lead to greater employment and a widening of the tax base. This will best ensure the financing of future public expenditure.

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