

# Finnish Forest Sector Economic Outlook 1999–2000

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## Summary

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*The weak economic development during the first half of 1999 has slowed down the growth rates of paper demand and decreased prices in Europe. As a result, Finland's paper production and exports will not reach last year's levels. In contrast, the production and exports of sawnwood are projected to grow as construction increases in Finland and its major export countries. The development of export markets is reflected in the Finnish roundwood markets as a slight increase in sawlog fellings and a decrease in pulpwood harvest.*

*Finland's paper and sawnwood production are expected to increase and prices rise slightly in 2000, if the economic growth speeds up in major European export countries and construction continues to grow. The risk of overheating in the U.S. economy, however, causes uncertainty to European economy. Roundwood markets respond to growth in the forest industry's production by increasing felling volumes. As the demand for roundwood goes up, stumpage prices will rise a little, but this rise will be curbed by increased wood imports and extended fellings in forestry companies own forests.*

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### **Economic Operating Environment**

The effect of the crises in Asia and Russia is evident in the Finnish forest industry's major export countries where economic development has

declined. Real GDP growth, weighted with the export shares of forest industry's export countries, is projected to shrink from last year's 2.4 per cent to two per cent this year. Next year, however, GDP growth will accelerate up to three per cent as export demand revives. Although the growth of construction is slowing down in Finland, next year's economic development is expected to surpass this year.

### **Forest Industry's Production, Exports and Prices**

Exports of Finnish sawnwood will grow at a rate of two per cent in both 1999 and 2000 as housing construction increases in the European export countries and Japan. In 1998 the value of Finnish sawnwood exports was EUR 1.4 billion. Exports and a growing domestic demand for sawnwood will increase Finland's sawnwood production by two per cent in this year and the next. This means that new production records will be set once again, and in 2000 the output is expected to climb to 11.7 million cubic metres. A strong demand for softwood plywood drives the production and exports of plywood, which will grow by eight per cent in the current year and two per cent next year.

The strengthening demand for sawnwood and the diminishing stocks of the buyers in Europe are expected to raise the Finnish markka export prices towards the end of the year. In 1999 and 2000, the average nominal price of the sawnwood exports will rise at a rate of two per cent, whereas last year the price declined by 11 per cent. The nominal

average price of plywood will remain at last year's level in 1999 and go up by one per cent in 2000.

A slowdown in economic growth in important export countries has weakened the demand for Finnish paper products in 1999. Even though economic growth is estimated to pick up towards the end of the current year, the volumes of Finnish paper exports and production will be down by one per cent from last year. In 1998 the value of Finnish paper exports was EUR 6.1 billion. In 2000, the exports and production of paper and paperboard will grow by two per cent as economic growth strengthens in Finland's major export countries.

The nominal Finnish markka export prices of paper and paperboard will rise towards the end of the year, but will nonetheless remain about two per cent lower than last year. The export price of softwood pulp will not surpass last year's level despite a continuing price increase since last spring. The export prices of paper and paperboard are, on average, expected to rise by three per cent in 2000.

### **Forest Industry's Costs and Capacity Utilisation Rates**

The forest industry's cost development has remained moderate in 1999, and the year 2000 is not expected to bring any major changes. Nominal wood costs will rise by between two and three per cent, mainly owing to increasing wood imports, and the cost of labour will remain below the growth of labour productivity. The decline of paper's export demand as well as prices will bring about a slight downturn in the returns of the forestry companies in 1999.

In 2000, export prices of paper and sawnwood are expected to rise as demand on the export markets increases. Due to increased demand, the paper and sawnwood industries' capacity utilisation rate will increase, which together with rising export prices will improve profitability.

### **Roundwood markets**

The forest industry's large production volumes will keep commercial fellings at the high level of 54.7 million cubic metres in 1999. Sawlog harvesting will increase by one per cent from last year, but pulpwood loggings will diminish by three per cent. Fellings in non-industrial privately owned forests (NIPF) are not expected to reach last year's volumes because forestry companies have effected more extensive cuttings than usual in their own forests, and roundwood imports have increased. In 1999, roundwood imports will grow by 15 per cent, i.e., to amount to a total of 13.8 million cubic metres.

The nominal stumpage prices of pine and birch sawlogs are likely to remain at about the same level as last year, whereas the price of spruce sawlogs will grow by four per cent, due to a strong export demand for spruce sawnwood and softwood plywood. The prices of pine and birch pulpwood will decrease between 6 and 7 per cent in the current year, but the price of spruce pulpwood will remain at last year's level.

In 2000, the forest industry's demand for roundwood will increase by two per cent from the current year. An increase in the use of wood will raise commercial fellings up to 55.3 million and roundwood imports up to almost 15 million cubic metres. Imports, which consist largely of pulpwood, already constitute about one fifth of industry's total use of wood.

The nominal stumpage prices of pine and birch are forecast to rise by one per cent on average, due to improving prospects for the forest industry in 2000. The prices of spruce sawlogs and spruce pulpwood will increase by two per cent in 2000.

## **Timber Production and Profitability of Non-Industrial Private Forestry**

In 1999, non-industrial private forest owners' (NIPF) total value of investments (in FIM) in timber production will increase by between 2–3 per cent from last year. In 2000, increased forest regeneration obligations and public subsidies to investments in NIPF will cause those total investments to amount to almost FIM 1.1 billion (EUR 185 million). Even so, total investments will still not reach the level of the early 1990's. Gross stumpage earnings from non-industrial private forests will shrink this year because both commercial fellings and stumpage prices will decrease. A projected rise in stumpage prices in 2000 will raise earnings almost back to what they were in 1998, i.e., EUR 1.6 billion. In 1999 and 2000, the total investment expenditures related to NIPF will constitute about 11 or 12 per cent of gross stumpage earnings.

The profitability of timber production in NIPFs will weaken slightly this year and the next. The unit costs of forest regeneration, silviculture, basic improvements and forest road construction are projected to go up during 1999 and 2000. The profitability of timber production declines in 1999 since the growth of stumpage earnings and public investments advances more slowly than the costs of timber production.

## **Labour**

Despite production downtimes and a consequent decline in production volume in early 1999, there will be a four per cent growth in the number of jobs in the pulp and paper industry. The growth in employment is due to increase in the number of white-collar workers, whereas the number of blue-collar workers has remained the same.

The employment situation in the wood products industry of 1999 will not present much alteration from the preceding year. There will be no increase in jobs offered by sawmilling, but the plywood

industry, the most strongly-growing branch of the forest industry production-wise, will add to the number of its employees by about 10 per cent. The year 2000 is projected to see an increase in the forest industry's production and exports, which will help to maintain a high employment rate.

Jobs in forestry are estimated to lessen by four per cent as commercial fellings decrease somewhat in 1999. Since the labour productivity of logging continues to grow, the employment in forestry is increasingly dependent on the development of labour needs in silviculture and other tasks. Forestry, together with forest industry is estimated to employ 147 000 people in all in 1999 and to maintain that level throughout 2000.

## **Business Survey**

In the early autumn in 1999, Finnish Forest Research Institute carried out a postal questionnaire business survey in order to study the prospects of the roundwood market in Finland. According to the results of this survey, the forest industry estimates that compared to the current year, 2000 will show an increase in the volumes of domestic roundwood and imported timber purchases. Purchases of a domestic origin, especially sawlogs, were thought to increase by between 2 and 10 per cent. It is expected that there will be a slight decline in Finnish timber supply: 37 per cent of forest owners, which is less than last year, are planning to sell timber in 2000. In addition, the forest industry's and forest owners' expectations for next year's stumpage prices are clearly further removed from each other than in the previous three years. A majority of the respondents representing the forest industry were inclined to predict a downward tendency in stumpage prices, and they thought pulpwood prices particularly likely to tail off. In contrast, forest owners were more inclined to project a rise in stumpage prices, although their expectations of the extent of these price rises, especially as regards pulpwood, were not as high as last year.



# 1 World and Finnish Economic Outlook

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## 1.1 World Economy

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*The gloomy prospects that hung over the world economy at the end of last year have improved over the summer months. The crisis-stricken Asian economies have begun to revive gradually, and Japan's economic recession has bottomed out. In contrast, the United States has entered its ninth consecutive year of economic growth. Europe's economic development has slowed down slightly this year owing to crises in the world economy. The strengthening of economic growth in the euro-11 countries and the United Kingdom towards the end of 1999 and throughout 2000 will create favourable circumstances for the exports of Finnish forest industry products. The beginning of the new millennium is projected to witness a gradual decline in the economic development of the United States, while the euro area is expected to become the driving force behind the world economy. Forecasts for next year's economic situation are made uncertain by the risk of overheating of the United States economy, the ongoing economic crises in Russia and Brazil, and what may turn out to be a prolonged period of weakness in the Japanese economy.*

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### **World Economic Crises Create Uncertainty in European Economic Development**

The Asian crisis caused the growth of the world economy to decline by 2.5 per cent last year. However, since the economic prospects took a turn for the better during the summer of 1999, growth will accel-

erate again. The International Monetary Fund (IMF) expects the world GDP to grow by three per cent in 1999 and by 3.5 per cent in 2000. In Europe, the effects of the crises in the world economy will become apparent as economic growth shrinks this year, but it is forecast that growth will pick up again next year.

Nonetheless, the world economy is suffering from uncertainty which, if it turns into instability, could impinge on economic growth in 2000. European growth is expected to pick up speed next year, whereas it is forecast that the pace of growth in the United States, although still rapid this year, will slow down a little next year. Moreover, uncertainty in the United States is further aggravated by a fast growing current account deficit in 1999, which adds to the pressure to raise interest rates. A rise in interest rates could, in turn, be reflected in the investment and consumer demand next year.

In Russia, the border war with Chechnya will increase economic instability. Political and economic reforms are called for in order to balance the country's economy and help it take a turn for the better. In addition, the crisis in Latin America is still not over either. Furthermore, even though economic growth is clearly picking up in Asian countries, the recession in Japan has only just bottomed out. As for China, economic growth is slowing down from last year despite measures to revive the country's economy.

Last summer gave rise to a positive atmosphere in the world economy, and the approach of the new millennium seems likely to boost it further. Among forest industry products, paper is likely to be in increasing demand towards the end of this year and into the beginning of the year 2000.

## **Exports Support Economic Growth in Euro Area in 2000**

In the beginning of January this year, eleven EU countries joined the third phase of the European Economic and Monetary Union (EMU) and, accordingly, their exchange rates became fixed. The common currency – the euro – will be introduced in 2002. The monetary policy of the euro countries is determined by the European Central Bank (ECB). In matters of fiscal policy, the member countries make their own decisions, but they are bound by the so-called Stability and Growth Pact.

When the euro area came into being, economic prospects were not bright. The slowing pace of world economic growth last year was reflected in the euro area in a decrease in export demand, especially towards the end of last year and the beginning of 1999, when GDP growth was maintained by private consumption. It seems, however, that exports have taken an upward turn in the second quarter of this year, and the euro-11 economies are expected to pick up a little during the second half of 1999 due to reviving exports. The growth of exports is the result of the recovery of Asian economies, the continued economic growth of the United States and the weakening of the euro. In addition, the economy of the UK, the biggest single trading partner with the euro area, is also expected to rally at the end of this year.

The weakening of the euro against the most important trading partners will contribute to export development. By mid-September this year, the euro had fallen by about nine per cent from its January average in relation to the US dollar. It rebounded in July, however, continuing on its way upwards throughout August, and by mid-September had strengthened by two per cent from its July average. This, however, is not enough to weaken the export prospects in the near future. The German Deutsche Bank (DB) estimates that there is a lag of between three and six months before changes in exchange rates affect exports. Accordingly, the beneficial effect of the currency's development should be reflected in the year-end export figures.

According to Deutsche Bank's estimates, private consumption in the euro area will increase by 2.5 per cent this year and by 2.6 the next. The growth of consumption is enhanced by the rise in nominal incomes, relatively low interest rates, and the slight improvement in employment figures, which will continue to boost consumer confidence in the economy in the year 2000. Owing to wage increases and the price development of raw materials such as crude oil, there will be a rise of 1.1 per cent in consumer prices this year and of 1.7 per cent next year. The HWWA overall commodities index, which has been on a downward curve since the beginning of 1997, took a turn upwards in March this year due to the strong rise in the price of crude oil. Between February and September this year, the index has strengthened by 37 per cent. As the economy grows stronger and the risk of inflation increases, the European Central Bank (ECB) will tighten its monetary policy in order to maintain a stable price level.

Economic growth in the euro area will have a positive impact on paper consumption at the end of 1999 as well as in 2000. Moreover, the consumption of sawnwood is also projected to increase along with construction activity in 1999 and 2000. Investments in the construction sector are reacting to improved economic prospects and low interest rates. In the current year, construction is booming in Spain, Finland and Ireland. The beginning of 1999 has also seen an increase in construction activity in France, whereas in Germany this sector is only just beginning to pick up. According to a prognosis by Deutsche Bank, construction investments will increase by three per cent in the euro area as a whole in 1999 and by 2.5 per cent in 2000.

## **Economic Growth Gathers Speed in Finland's Principal Export Countries**

Economic growth is projected to gather speed towards the end of the year in the most important export countries of Finnish forest industry. Weighted with export shares, the GDP of export countries is



estimated to increase by two per cent in 1999 and three per cent next year (Table 1). In *Germany* the growth of the GDP is expected to accelerate along with the increase in domestic consumer demand and investments as well as reviving exports during the second half of 1999 and throughout 2000. Investments in housing construction are forecast to increase by 0.6 per cent in 1999 and 1.4 per cent in 2000, whereas in 1998 they lost ground by 3.6 per cent.

According to a prognosis by Deutsche Bank, private consumption in *Germany* will grow by two per cent in 1999, and by 2.3 per cent in 2000. Last spring's decisions on tax reliefs and increased ben-

efits for families with children will increase the consumption potential of German households even though unemployment benefits and pension increases will be cut back. In addition, the improving employment situation and increased income level will also have a positive effect on consumption.

The economic growth of *France* began to revive during the second quarter of this year as private consumption accelerated and exports took a turn upwards. However, according to INSEE, the National Institute of Statistics and Economics, the annual growth of consumption will shrink from last year's 3.6 per cent to 2.1 per cent in 1999. Owing to the French government's decision to grant tax reliefs to

**Table 1.** Forecasts for Economic Growth (real GDP, percentage of changes per annum).

	Share of Finland's forest industry's export value,%	Realised GDP growth, % 1998	IMF* 1999	IMF* 2000	Deutsche Bank 1999*	Deutsche Bank 2000*
<b>Weighted with forest industry's export shares</b>		<b>2.4</b>	<b>2.1</b>	<b>2.8</b>	<b>2.2</b>	<b>3.0</b>
EU	69.6	2.7	2.0	2.7	2.1	3.1
Euro countries	46.0	2.8	2.1	2.8	2.1	3.1
Asia**	7.5	3.7	5.3	5.4	5.1	4.9
United States	5.6	3.9	3.7	2.6	4.0	3.0
Eastern and Central Europe**	4.6	2.2	1.0	3.3	1.3	2.8
Russia	2.4	-4.6	0.0	2.0	-1.0	1.0
Latin America	2.2	2.2	0.1	3.9	-0.5	3.3
Germany	18.1	2.3	1.4	2.5	1.6	3.0
United Kingdom	16.2	2.2	1.1	2.4	1.5	3.0
France	7.2	3.2	2.5	3.0	2.4	3.0
The Netherlands	5.3	3.8	2.6	2.5	3.0	3.2
Belgium	4.7	2.9	1.4	2.5	1.6	2.9
Spain	4.8	4.0	3.4	3.5	3.6	4.0
Italy	3.2	1.3	1.2	2.4	1.1	2.4
Denmark	3.2	2.9	1.3	1.5	1.5	2.3
Sweden	3.4	2.6	3.2	3.0	3.8	4.0
Canada	0.6	3.1	3.6	2.6	3.7	3.4
Japan	2.4	-2.8	1.0	1.5	1.5	1.2
China	0.6	7.8	6.6	6.0	6.8	6.0

\*The forecasts of IMF and Deutsche Bank were published in September 1999.  
\*\*IMF's and Deutsche Bank's projections for Asia and Eastern and Central Europe differ partly because the research institutes define these regions differently.

the housing market, construction has been on the increase since the second quarter of 1999. According to the French Ministry of Transport and Housing (Ministère de l'Équipement des Transports et du Logement), new housing is up 17 per cent from last year. The French GDP is projected to rise by three per cent in the year 2000.

Like other euro countries, the *Netherlands*, *Belgium*, *Spain* and *Italy* are experiencing a lower rate of economic growth than last year. Nevertheless, growth is expected to pick up towards the end of the year, and the IMF has forecast that the GDP will increase by between 2.4 and 3.5 per cent in these countries in 2000.

The economy of the euro area is strengthened by the positive economic development of the *United Kingdom*, the recipient of almost one fifth of exports from the euro-11 countries. The confidence indicators of the country's industry reflect growth expectations, and, due to increased private and public consumption, the UK economy has shown an upward tendency since the beginning of the year. Oxford Economic Forecasting (London Business School) predicts that private consumption will grow by 2.9 per cent in 1999 and 2.3 per cent next year. The country's economic growth is promoted by increased consumer income, low unemployment figures and a downturn in interest rates since last autumn.

According to confidence indicators, the prospects for the UK's construction industry have improved from last year. Although the strong pound sterling is a hindrance to the country's competitiveness, exports are projected to rise during the second half of the current year. Moreover, the pound sterling can be expected to remain strong against the euro as the British economy revives. Oxford Economic Forecasting predicts that Britain's GDP will increase by 0.8 per cent this year and two per cent the next.

*Sweden's* economic growth has been more rapid than expected. Owing to tax cuts, there has been an upturn in domestic demand and the rate of employment. In addition, the poor development of the

Swedish construction industry rebounded last year and the upward tendency has prevailed throughout the current year, especially as regards housing construction. The Swedish National Institute of Economic Research (Konjunkturinstitutet) predicts an increase of 3.8 per cent in the country's GDP this year and 3.2 the next.

According to Konjunkturinstitutet, the recent strengthening of the Swedish krona against the US dollar is due to the economic situation: the Swedish economy is climbing and long-term interest rates are up. At the same time, the difference between long-term interest rates in Sweden and the United States has almost evened out. In the year 2000, as economic growth strengthens in Sweden and slows down in the United States, the krona can be expected to grow a little stronger in relation to the dollar. Similarly, Konjunkturinstitutet projects that in 2000 the krona will strengthen by almost three per cent against the euro, which will slightly weaken Sweden's competitiveness against the euro countries.

The *Russian* economy remains depressed because of weak domestic demand and uncertainty on the political front. Moreover, the strict economic policy agreed upon with the IMF makes it very difficult to revive demand. Industrial production has increased over the past few months but most of the growth has taken place in sectors of domestic production that make up for imports. Although the devaluation of the rouble in August last year afforded Russia a competitive advantage, exports have not been able to benefit from it; the country's productive machinery is weak and it is difficult to attract capital. Furthermore, the real competitive edge created by the change in the exchange rate has already been blunted since inflation is higher in Russia than in other countries. It is likely that the intensifying political struggle preceding the presidential election next summer will increase economic uncertainty and affect inflation as well as the rate of exchange for the rouble.

## Substantial Current Account Deficit in the US Creates Uncertainty in the North-American Economy

In the *United States*, economic growth has been maintained by increasing private consumption, which in turn has been sustained by a rise in real income, a heightened demand for consumer credit as well as a relatively low interest rate. Construction activity has been high in the current year, but there have been signs that growth may come to a halt.

Growing domestic consumption together with weak export development have increased the current account deficit, thereby adding to the pressure to the depreciation of the dollar. A substantial one-off depreciation would reduce imports into the United States and consequently have a negative impact on world economic growth as a whole. A gradual depreciation of the dollar is possible, however, and the US Federal Reserve Bank (Fed) is believed to support this kind of development by raising the funds rate in stages to avoid overheating in the economy. If the Fed's policy turns out to be successful, economic growth will gradually slow down. In the current year, GDP growth will remain within the Fed's estimate of between 3.3 and 4 per cent, and drop down to between 2 and 3.5 per cent in the year 2000.

The economic growth of *Canada* has quickened slightly since last year. Correspondingly, unemployment figures are down to a nine-year low of 7.5 per cent. Canada's economy has been depressed by the drop in the market prices of raw materials caused by the Asian crisis in 1997 and 1998. The exports of Canadian forest industry products into Asia declined because of the economic recession, and, consequently, Canada directed its exports into the United States where demand has remained strong.

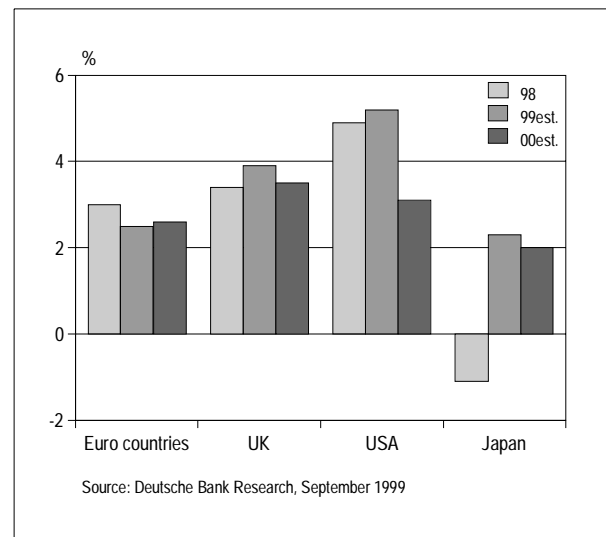
A prospect survey made by Statistics Canada in July 1999 indicates a bright outlook for the country's industry: the autumn of the current year will show an increase in the number of orders and output volume. The most optimistic expectations concern transport as well as paper and wood products industries. The outlook has also improved for the con-

struction industry and the number of housing starts has grown from last year. According to the Bank of Montreal, Canada's GDP has increased at a rate of three per cent in the current year, and next year's increase is projected to amount to 3.4 per cent.

## Japan's Economic Recession Has Bottomed Out

*Japan* has yet to recover from the worst economic crisis it has known since the war. Strong economic revival packages introduced by the government are having but a slow impact. It seems that the decline of economic growth has stopped and that investments in the public sector have taken a turn upwards. Nonetheless, the private sector is still weak. In the current year, housing construction has increased due to governmental support and the number of housing starts (seasonally adjusted) has grown from 1.15 million in the second half of 1998 to 1.3 million in the first quarter of the current year.

Unemployment figures are currently unusually high for Japan (five per cent), and the number of people out of work continues to grow strongly,



**Figure 1.** Private Sector Consumption in Export Countries between 1998 and 2000est. (percentage of change in consumption expenditure per annum).

which has increased saving and lessened private consumption. Since the previous major measures adopted to revive the country's economy have fallen short of expectations, the Japanese government introduced a new revival package in November. The recovery of economic growth in other Asian countries, where 40 per cent of Japan's exports are directed, will have a positive effect on the country's economy. Asia Pacific Economic Cooperation (APEC) expects the Japanese GDP to grow by 0.5 per cent in the current year, while next year's growth will amount to 1.2 per cent.

Economic growth has begun in the Asian crisis countries. Growth is strongest in *South Korea*, whose GDP is projected to increase by 4.3 per cent this year. As for *China*, the economic situation has become worse despite the government's strong investment programme. The country's economic development has slowed down from last year because of weakened export as well as domestic demand.

## 1.2 Finnish Economy

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*Over the previous five years, Finland's total production has grown by an average of 4.6 per cent per annum. Last year's GDP growth reached 5.6 per cent, which exceeds the average growth of the euro countries by a couple of percentage points. Although economic prospects looked gloomy towards the end of last year, they have improved over the spring and summer. Nevertheless, it is forecast that in 1999 and 2000, the rate of GDP growth will not be able to match the pace set in the past few years. Prospects for economic development are good, however, because employment figures are improving, private consumption is increasing and foreign trade shows a surplus. In addition, the inflation rate is also expected to remain within the limits set by the ECB's monetary policy. However, the world economic development and forthcoming rises in nominal wages are uncertain factors that can affect the employment rate, among other things, and thereby also the Finnish economy.*

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## Exports Boost Economic Growth in 2000

In the first quarter of the current year, Finland, like many other euro countries, experienced a decline in exports that have since picked up. On a yearly level this means that export growth will sink from last year's 9.6 per cent to 3 per cent this year. This will also have a reducing effect on the real GDP which, according to the Research Institute of the Finnish Economy (ETLA), will amount to 3.5 per cent in 1999. As exports have weakened, GDP growth has been maintained by consumer demand, which has remained high because of favourable developments in the employment situation and a low interest rate, and is expected to stay up and contribute to economic growth next year as well. Exports are projected to increase due to a weak euro and the growing economies of the Asian crisis countries and Europe. Next year, according to ETLA, export growth will strengthen and reach seven per cent, and Finland's real GDP is forecast to increase by four per cent.

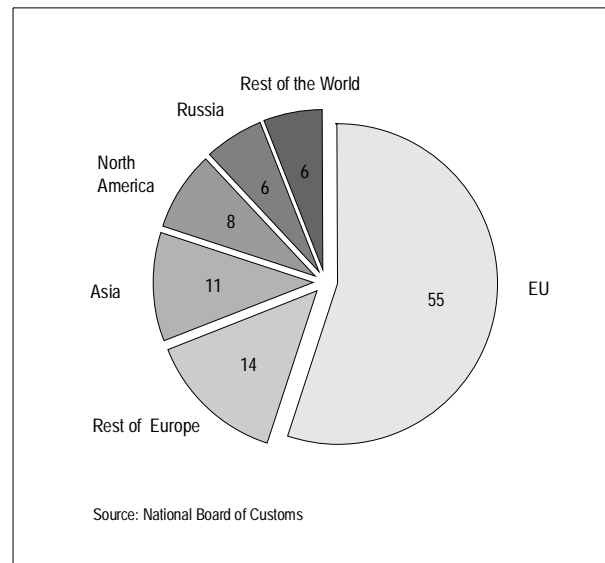
In the current year, inflation has remained moderate, i.e., at a level of 1.1 per cent, despite good economic growth. Increased import prices, for example, the rise in the price of oil, have added to inflationary pressures. In fact, the Ministry of Finance predicts that inflation will climb to 1.7 per cent next year. However, the development of inflation is made uncertain by the development of wages and housing prices. On the other hand, the strengthening of the euro will diminish inflationary pressures. If the current autumn's wage settlement is moderate, it helps the inflationary development also to remain moderate in 2000.

Since the euro is under pressure to appreciate against the U.S. dollar, there will be no improvement in Finland's price competitiveness next year. However, if the krona strengthens in relation to the euro, Finland will gain a slight competitive edge over Sweden.

## Prospects in the Construction Industry

According to a prognosis by the Confederation of Finnish Construction Industries, total construction output will grow by only five per cent in 1999 and by four per cent in 2000, whereas in 1998 growth reached nine per cent. The decline in growth is mostly due to a decrease of the growth rate in new construction as well as earth and water construction. Construction of new houses is forecast to grow by six per cent in the current year and four per cent the next. Both years will see a two-per-cent increase in earth and water construction.

The construction industry began to recover in the spring of 1996, and last year the volume of housing starts reached 36.4 million cubic metres. Between 1995 and 1998 the growth of housing starts amounted to 50 per cent. In the same period, the value of renovation construction increased by 150 per cent. In 1999, renovation construction will constitute 43 per cent of the total value of housing construction. Owing to the age structure of Finnish building stock, the volume of renovation construction will increase in the long run, and its growth, according to the Confederation of Finnish Construction Industries, will



**Figure 2.** Finland's Exports by Region in 1998 (percentage of shares).

be more rapid and more stable than the growth of new construction. Moreover, compared to the 1980's, when its share of the total construction activity amounted to approximately one fourth, renovation construction now has more potential to com-

**Table 2.** Forecasts for the Finnish Economy.

	Realised	Ministry of Finance		ETLA	
	1998	1999	2000	1999	2000
*GDP, %	5.6	3.8	3.9	3.5	4.0
*Exports, %	9.6	3.7	6.1	3.0	7.0
*Investments, %	9.0	7.8	5.7	7.0	6.0
– private	11.0	9.9	6.7	9.5	6.0
– public	-0.2	-2.9	0.2	-5.0	5.0
*Building construction, %	9.7	5.5	4.5	6.0	4.0
Change in consumer price index, %	1.4	1.0	1.7	1.1	1.7
Unemployment rate, %	11.4	10.3	9.3	10.1	9.0
Euribor, 3-month, %	3.6	2.7	2.7	2.8	3.3

\*volume change  
The Ministry of Finance and ETLA, The Research Institute of the Finnish Economy, published their forecasts in September 1999.

pensate for fluctuations in the business cycles that affect the industry.

The development of construction shows considerable regional variation. Growing population centres in particular are suffering from a shortage of housing, but most districts are losing inhabitants to the metropolitan area and other centres of growth. According to the Confederation of Finnish Construction Industries, housing stock is currently being used to full capacity in these continually growing areas and the scarcity of available dwellings has caused an increase in rents and housing prices. Among factors contributing to the current rise in prices are the small volume of construction and the strong migration trend of the early 1990's. In addition, although the volume of housing production is expected to remain at a high level during the next few years, it is likely that the short supply of sites will increase the prices of new homes.



## 2 Forest Industry

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### 2.1 Exports, Production and Prices of the Wood Products Industry

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*In the current year, housing construction has continued to grow in Finland as well as in the major export countries of the Finnish wood products industry with the exception of Germany. Consequently, the production and exports of Finnish sawn softwood will increase by two per cent this year, while the production and exports of Finnish plywood will surpass last year's volumes by as much as eight per cent. In 2000, construction activity may slow down in the United States. In contrast, housing construction is projected to increase in Europe, with the United Kingdom showing particularly rapid growth, and the Japanese construction sector is also recovering. The wood products industry will remain competitive, and the exports of Finnish sawnwood and plywood will increase by two per cent in 2000. In the beginning of 1999, the export price of plywood was considerably lower than at the same time the previous year. The prices have rebounded, however, and with a further increase next year, they will be back at last year's average level. Export prices of sawnwood will rise by two per cent on average both in 1999 and 2000.*

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### Sawn Whitewood Exports Continue to Grow

Seventy per cent of Finnish sawnwood exports were directed to EU countries in 1998. Asia accounted for a good ten per cent and Egypt continues to be an important export market for sawnwood with her almost ten per cent share. As for plywood, more than 80 per cent is exported to EU countries, with Germany as the most important single export country. In 1998, Japan's share shrank by a couple of percentage points from 1997 down to about five per cent. During 1999, Japan's import demand for sawnwood has, however, recovered considerably, which has led to an increase in Finnish sawnwood – particularly sawn whitewood – exports to Japan. Japan's import demand is boosted by the yen's strengthening against the US dollar and the euro, as well as by the recovery of housing construction. The number of housing starts in Japan has increased from last year, particularly over the summer months of 1999.

Japan's sawnwood and plywood imports have grown steadily throughout the 1990's, while the production of the country's domestic wood products industry has been tailing off. Since import demand for sawnwood and plywood has also increased steadily in the United States during the past few years, Canadian sawnwood and plywood producers have found export markets outside Europe. In consequence, Finnish and Swedish sawnwood producers have been able to expand their exports in Europe although the European consumption of sawnwood has grown very little during the past couple of years. As a result, Finland's

market share has increased considerably on European sawnwood markets between 1998 and 1999. The decrease in Russian exports has also facilitated the expansion of Finnish and Swedish exports. In contrast, Russian plywood exports have increased although the production has tapered off.

During the first half of 1999, the volume of sawnwood exports has grown by one per cent and decreased in value by one per cent in comparison with the same time period last year. Plywood exports, in turn, have grown by six per cent in the first half of the current year, whereas export value has dropped by four per cent. The growth of plywood exports hinges on softwood plywood, whose export volume rose in the first half of the year by over 25 per cent whereas birch plywood exports declined by almost seven per cent. The weakening of the euro in relation to both the Swedish krona and the U.S. dollar has enhanced Finland's competitiveness. Swedish and German sawnwood exports to Europe declined in the beginning of 1999, whereas the Baltic countries' exports picked up.

In the beginning of 1999, North America's sawnwood and plywood production showed a rapid growth of between 5 and 8 per cent from last year. Construction activity was in good shape during the

first half of 1999, but signs of the growth slowing down began to be seen by August and September. Prices of sawnwood in North America took a turn downwards in late summer.

### **Growth in the Construction Sector Increases Sawnwood Demand in Europe**

Sawn whitewood has been in increasingly strong demand on the export markets, whereas demand for sawn redwood has been sluggish. The situation has affected the price relation of these two commodities so that the price of sawn whitewood almost reached that of redwood by the autumn months of 1999. During the first six months of 1999, the Finnish markka export prices for sawn redwood were ten per cent lower than the previous year. In contrast, sawn whitewood export prices were on average five per cent higher than in the first half of 1998.

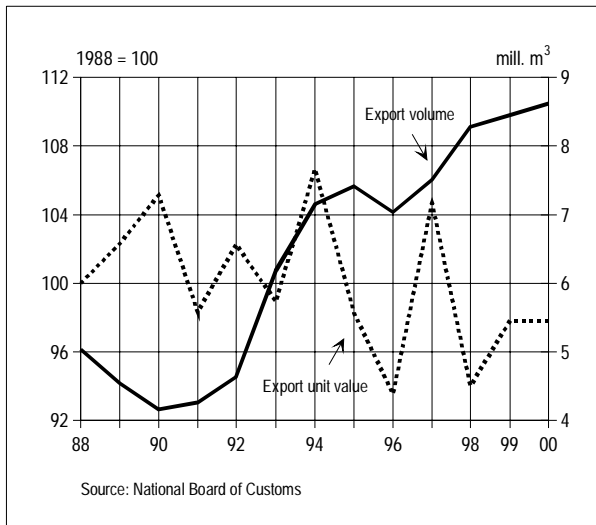
Economic development continues to be favourable in Finland's major export markets this year and the next. This development is also reflected in construction activity, which is expected to increase in 1999 and 2000. According to Euroconstruct's

**Table 3.** *The Finnish Sawmilling and Plywood Industries in 1998 (1000 m<sup>3</sup>).*

	Sawn Softwood	% of production	Plywood	% of production
Production	11 300	100	992	100
Domestic use*	3 011	26	161	16
Exports:	8 289	74	831	84
EU	5 848	52	685	69
Asia excl. Japan	435	4	32	3
Japan	433	4	6	0
Africa	1 336	12	2	0
North America	38	0	36	4
Russia	5	0	2	0
Others	217	2	68	7

Source: Finnish Forest Industries Federation  
 \*Domestic use = production – exports; export figures include sawn hardwood





**Figure 3.** *Export Volumes and Real Export Unit Value for Sawnwood between 1988 and 2000est.*

projections, construction will grow by 2.4 per cent in the EU countries in 1999 and 2.1 per cent in 2000. However, construction development is poor in Germany, the biggest constructor in Western Europe and the largest buyer of Finnish sawnwood; it is forecast to remain at last year's level in 1999, but to grow by about one per cent in 2000. Germany's construction activity is hindered by a low rate of industrial and commercial construction and the persisting sluggishness in the public construction sector. In Eastern Germany construction activity is still declining. British housing construction has been boosted by the fast recovery of the U.K. economy. In France, too, construction activity is expected to pick up towards the end of 1999.

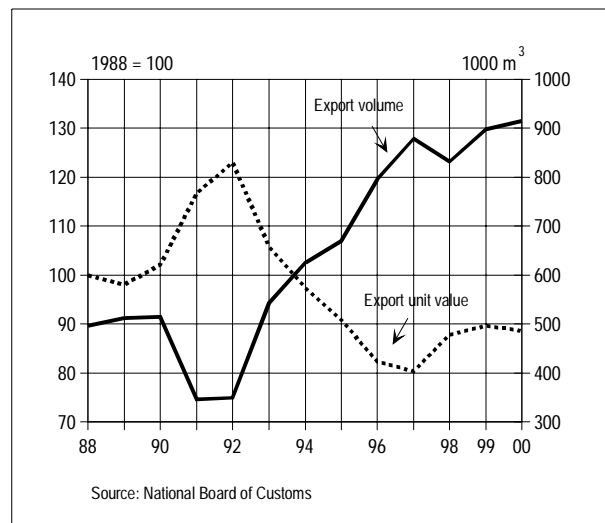
The inventories of European sawnwood buyers have diminished in the current year, and if demand increases towards the end of the year, sawnwood prices may experience a substantial rise. This will be reflected on the price level of Finland's exports. If the yen remains strong and Japan's construction sector recovers, Finnish exports of sawnwood to Japan will continue to grow at the end of 1999. It is estimated that the total volume of Finnish sawn-

wood exports and export prices will both increase by two per cent in the current year.

Driven by exports and domestic consumption, Finland's production of sawnwood is forecast to grow by two per cent this year. The export volume and production of plywood are expected to reach an eight-per-cent increase in 1999, while export prices remain at last year's level. Finland's domestic consumption of sawnwood is projected to amount to 3.3 million cubic metres.

### Bright Prospects for Construction in 2000

Euroconstruct forecasts that housing construction will grow by as much as five per cent in the United Kingdom in 2000. This will have a positive effect on Finnish sawnwood exports since the UK's share of total sawnwood exports amounts to about 20 per cent. The German construction industry may also achieve slight growth. Furthermore, Japanese construction is also projected to recover, which will spur exports to Asia. In China the construction sector showed some signs of overheating this year, which



**Figure 4.** *Export Volumes and Real Export Unit Value for Plywood between 1988 and 2000est.*

**Table 4.** *Wood Products Industry Production and Export Forecasts, 1000 m<sup>3</sup> (per cent changes from previous year below the respective figure).*

	PRODUCTION			EXPORTS		
	1998	1999est.	2000est.	1998	1999est.	2000est.
Sawn Softwood	11 300	11 500 +2	11 700 +2	8 289	8 450 +2	8 620 +2
Plywood	992	1 070 +8	1 090 +2	831	897 +8	915 +2

had a positive impact on sawnwood imports. Next year looks uncertain for China, especially if the overheating in the construction sector continues.

The growth of housing construction that has continued for a long time in the United States may decline next year if interest rates go up and consumer confidence in economic development takes a turn downwards. Japan's strong import demand is likely to restrain the interest of Canadian sawnwood exporters to increase exports to Europe.

In 2000, an increase in supply on Europe's sawnwood markets will probably be mainly of European origin. Sweden's production capacity has increased somewhat, and Germany's sawnwood exports have also been waiting for an opportunity to expand over the past few years. In addition, Eastern European and Russian exports are expected to increase next year.

**Table 5.** *Forecasts for Nominal Export Prices\* of Sawn Softwood and Plywood (per cent change from the previous year).*

	1998 change, %	1999est. change, %	2000est. change, %
Sawn softwood	-11	+2	+2
Plywood	+8	0	+1

\*Export prices are export unit values in FIM.

Exports of Finnish sawnwood are projected to grow by two per cent in 2000. Export prices will also show an average increase of two per cent. The competitiveness of Finnish sawnwood exporters should remain reasonably good next year, particularly as the Swedish krona is generally expected to strengthen. The introduction of a Pan-European forest certification system (PEFC) in Finland's sawnwood production will probably add some extra cost to the Finnish producers, but in the long run it will have a positive effect on the competitiveness of Finnish sawnwood exports. In 2000, exports of plywood are projected to grow by two per cent and export prices by one per cent from this year's level.

### **Growth of Finnish Construction Contributes to Sawnwood Demand**

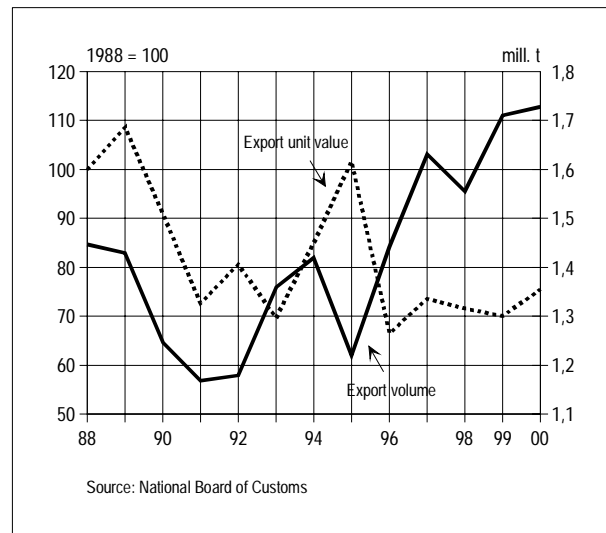
The growth of Finnish sawnwood production is spurred by domestic construction activity as well as exports. The Confederation of Finnish Construction Industries (RTK) forecasts that housing construction will increase by a good four per cent in the current year and just under four per cent in the next. In 2000, Finland's sawnwood consumption will grow by two per cent from this year's level, totalling 3.4 million cubic metres. Booming domestic consumption together with increasing exports is expected to cause a good two-per-cent growth in sawnwood production in 2000.

## 2.2 Exports, Production and Prices of the Pulp and Paper Industry

*In the first half of 1999, the exports of Finnish paper products experienced a downturn compared to the same period in 1998. Furthermore, despite the devaluation of the euro, the Finnish markka export prices also fell sharply. The pulp prices have been low, whereas exports exceeded those of the first half of 1998. The strong rise in prices that began in late spring is expected to continue until the end of 1999 and to even out in 2000. The rise in pulp prices can be expected to lead to an increase in paper and paperboard prices at the end of the current year and throughout next year. The 1999 paper exports will fall one per cent short of last year's level. In 2000, the growth in most important European economies is projected to be higher than in the current year, which will create an opportunity for a two-per-cent increase in Finnish paper and paperboard exports. A potential decline in the United States' economic growth and an appreciation of the euro will cause the price rise in paper products exports to be limited to three per cent, while the rise in pulp prices is likely to amount to ten per cent on average.*

### Low Pulp Inventories Affect the Outlook for the Sector

The main market for the Finnish pulp and paper industry is still the European Union. Measured in terms of export volumes, EU countries absorbed 89 per cent of the country's pulp exports, 70 per cent of paper exports and 65 per cent of paperboard exports. In the first half of 1999, however, exports to Finland's large export partners such as Germany, the United Kingdom and France have diminished considerably compared with the same period last year.



**Figure 5.** Export Volume and Real Export Unit Value for Pulp between 1988 and 2000est.

In 1998, Asia's share of Finland's paper exports shrank by a couple of percentage points down to six per cent of total exports, and yet the continent increased its share of paperboard exports. The United States' share of paper exports increased to over ten per cent. The decline in Asia's share of paper exports has been caused by the recession of Asian economies, whereas rapid economic development in the United States is reflected in the country's paper consumption and imports. However, in the first half of the current year, paper imports from Finland to the United States have shown a considerable downturn from what they were at the same time last year.

In the end of 1999, prospects will favour price increases of pulp. Price increases will be likely because of the solid economic situation, and the low level of NORSCAN inventories brought about by restrictions on production. The NORSCAN inventories dropped in September by 190 000 tons to 1.27 tons i.e. below the "optimal inventory level" of 1.5 million tons, a usual trigger level for price increases. The market will remain very tight as there will be extensive downtime during the last months of 1999. According to Utipulp statistics, in

September 1999 the consumer inventories fell to a level that corresponds to 38 days of supply.

Measured by the PIX pulp price index maintained by the Finnish Options Exchange (FOEX), the price for bleached softwood pulp remained at the very low level of 460 U.S. dollars per ton from December 1998 till March 1999. By summer, the price had risen to 520 dollars per ton, and in August it started to grow rapidly, reaching 590 dollars per ton by the beginning of September. The price development of hardwood pulp has shown a similar rising tendency, ending up at 535 euros per ton in the beginning of November. The HWWA index of pulp has also taken a clear upward turn, although from January till October 1999, it was still about five per cent lower than in the corresponding period last year.

Companies have announced further increases in pulp prices for the autumn of 1999. Expectations are that these price rises will go through, and the price of pulp is likely to rise to 600 dollars per ton by the end of the current year. In 2000, the price of pulp will exceed 600 dollars. However, pulp prices will be held back by the dragging paper prices and by some investments in pulp production in Asia

which will bring more supply on the markets once completed. In contrast, pulp capacity in Europe will not be growing much in 2000.

### Paper Prices Rise in the End of the Year

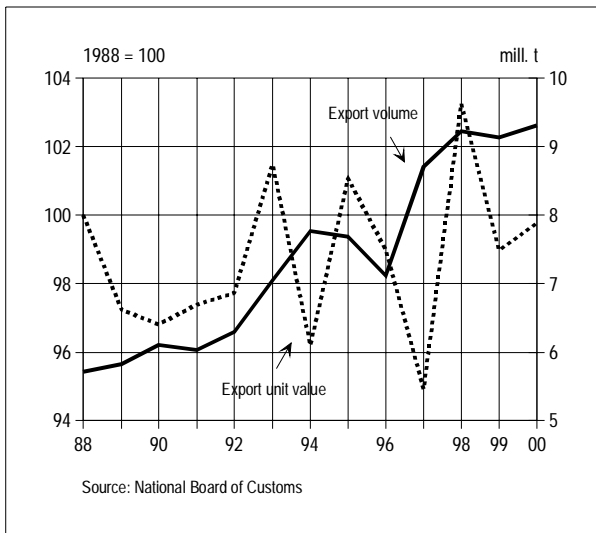
The Finnish markka prices of the various paper grades were lower in the first half of 1999 than in the same period last year. The price of newsprint was down by about three per cent, magazine paper by almost 14 per cent and fine paper by about 9 per cent, and the price of paperboard also declined by about six per cent from last year. The increase in pulp prices towards the end of the year and throughout 2000 will put pressure on raising the prices of paper, particularly fine paper. On long-run there is still a clear interdependence between prices of pulp and prices of fine paper in particular, and because of substitution between different paper grades, the rise in pulp prices will also lead to an increase in the prices of wood-containing papers. In the light of the PIX indexes, it seems that fine paper prices will follow pulp prices. Moreover, several forest product companies have announced increases for the prices of

**Table 6.** *The Finnish Pulp and Paper Industry in 1998 (1000 tons).*

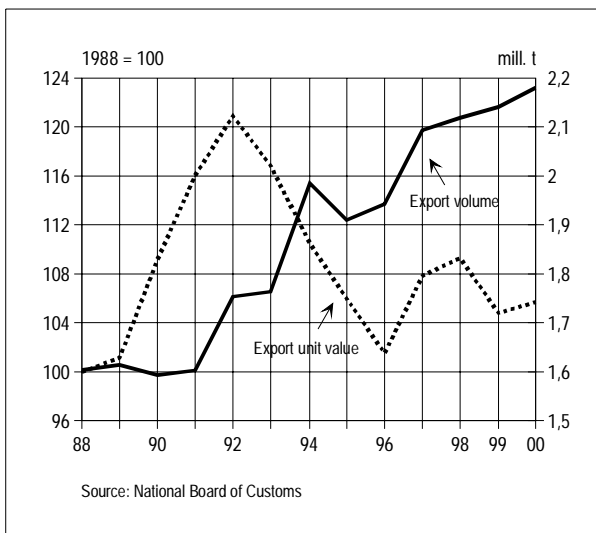
	Pulp	% of production	Paper	% of production	Paperboard	% of production
Production	6 718	100	10 116	100	2 586	100
Domestic use*	5 163	77	890	9	468	18
Exports:	1 555	23	9 226	91	2 118	82
EU	1 380	21	6 494	64	1 369	53
Asia	83	1	561	6	324	13
Africa	5	0	102	1	62	2
United States	5	0	708	7	84	3
Russia	6	0	74	0	32	1
Others	76	1	1 287	13	247	10

Source: Finnish Forest Industries Federation

\*Domestic use = production – exports



**Figure 6.** *Export Volume and Real Export Unit Value for Paper between 1988 and 2000est.*



**Figure 7.** *Export Volume and Real Export Unit Value for Paperboard between 1988 and 2000est.*

newsprint and coated fine paper for the near future. These rises are likely to go through because of the development in pulp prices. Also the increased demand for printing papers due to the millennium effect will support rises.

### Slight Downturn in Finnish Paper Production and Exports in 1999

Finland's production of pulp has increased by one per cent, whereas paper production has tailed off by 4.5 per cent and paperboard by almost five per cent during the first half of 1999 compared with the same period last year. The production of wood-containing paper in particular has shown a marked decrease. However, because the markets have picked up a little, the decrease in paper production slowed down during the second quarter. In the second half of the current year, production has taken a turn for the better again, and this year's production level is projected to fall only one per cent short of last year. Exports of magazine paper from Finland to Germany have been brisk but otherwise Finnish paper exports as a whole have not reached last year's level as yet and are projected to decrease by about one per cent on a yearly basis.

The yearly production of pulp is expected to grow by about one per cent in 1999. The Finnish pulp exports increased by an average of 22 per cent in the period between January and June in 1999, although export value only grew by about four per cent owing to the low prices of pulp. Due to a sharp rise in the beginning of the year, pulp exports are projected to increase by ten per cent in all from last year. Judging by the first six months of the current year, softwood pulp exports have been particularly brisk. Because of downtime on production, Finland's paperboard production will fall by three per cent this year, but exports will exceed last year's level by a narrow margin.

Because the U.S. dollar price of pulp has taken a turn upwards, the average Finnish markka export price will reach last year's level although the beginning of the current year was weak. As regards to papers, the price rises this autumn will increase the prices of fine papers in particular, but the average Finnish markka price level in paper exports will remain a few per cent below that of 1998. The price development of paperboards follows that of paper.

**Table 7.** *Pulp and Paper Industry Production and Export Forecasts, 1000 tons (per cent changes from previous year below the respective figure).*

	PRODUCTION			EXPORTS		
	1998	1999est.	2000est.	1998	1999est.	2000est.
Pulp	6 718	6 785 +1	6 920 +2	1 555	1 711 +10	1 728 +1
Paper	10 116	10 000 -1	10 200 +2	9 226	9 130 -1	9 310 +2
Paperboard	2 586	2 560 -1	2 610 +2	2 118	2 140 +1	2 180 +2

## Y2K Promising for Paper Exports

The year 2000 looks promising from the point of view of Finnish paper exports. Economic growth in the most important European markets will accelerate from 1999 and production capacity will not limit export growth to any significant extent. In 2000, the increase in paper consumption is projected to be nearly three per cent in the euro area and even higher in the United Kingdom. This will be made evident as demand for paper and paperboard increases in Europe. Moreover, the Asian economies are growing again, which will also have a positive effect on the development of Europe's paper and pulp markets.

The positive development of the markets is also spurred by the moderate growth of paper supply.

**Table 8.** *Forecasts for Nominal Export Prices\* of Pulp, Paper and Paperboard (per cent change from the previous year).*

	1998	1999est.	2000est.
Pulp	-3	0	+10
Paper	+8	-2	+3
Paperboard	+2	-2	+3

\*Export prices are export unit values in FIM.

Especially in Europe, the expansion of paper capacity will remain relatively minor in 2000, because new capacity investments will involve reductions to existing capacity. Finland's position is improved further by the strong demand for paper in the United States and Japan, which should reduce Canadian supply on Finland's principal market area in Europe. The competitiveness of Finnish producers will remain strong even if the euro appreciates a little. The Swedish krona is also projected to strengthen against the dollar next year.

The favourable development of Finland's export markets could be threatened by uncertainties in the Chinese economy, for example. The economic prospects of Russia and Latin America are also very uncertain, and exports to these areas cannot be expected to increase. The economic development of the United States next year is also to some extent uncertain.

In 2000, Finland's export volumes of paper and paperboard will rise by an average of two per cent from 1999, whereas pulp exports are forecast to increase by one per cent compared to this year. Finland's market pulp production capacity would allow even larger export volumes, but now that the prolonged period of low pulp prices has finally come to an end, producers would hardly wish to jeopardise the current rising price development by major production increases. Next year's projected

increase in paper and paperboard exports will mean a return to the 1998 level.

Export prices of paper and paperboard are projected to rise by an average of three per cent next year. The prices of fine papers will show the greatest increase, having already taken an upward turn in the autumn of 1999. The magazine paper prices will follow the fine paper prices on their upward curve somewhat later.

## **2.3 Costs and Profitability of the Forest Industry**

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*There are no major changes in sight for the forest industry's cost development in 2000. Nominal wood costs are projected to rise by two to three per cent in 2000 mostly due to increasing volumes of imported wood. The cost of labour is estimated to remain below the growth of labour productivity, i.e. at about four per cent. If the projected increase of total demand in the forest industry's major export markets is realised and the export product prices rise, the industry's utilisation rate will grow and its profits will improve in 2000.*

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### **Minor Changes in Wood Costs**

The Finnish forest industry's wood costs consist mainly of stumpage and import-wood expenses. Stumpage prices make up a good two thirds of the factory price of wood and timber harvesting and transportation slightly less than one third. Owing to good weather and an increased degree of mechanisation, nominal costs of wood production will not rise in the current year. The degree of mechanisation has increased strongly in Finnish forestry in the 1990's, reaching the level of 91 per cent in the harvesting of forestry companies and the Finnish Forest and Park Service last year. However, mechanisation is expected to decelerate in Finland during the next

few years. Furthermore, the costs of long-distance transportation are projected to remain at last year's level in real terms. Stumpage prices and costs of timber harvesting will abate a little this year. A slight rise in wood costs is due to an increase in volumes, especially as regards imported wood.

In 2000, the Finnish forest industry's wood costs are projected to rise by between two and three per cent compared to the current year. The cost increase is mainly due to growing wood import volumes, but the costs of wood of domestic origin will also increase as stumpage prices rise a little. In addition, the declining development of harvesting costs is projected to come to a halt in 2000, and the costs of long-distance transportation may rise even in real terms. In 2000, imported wood is estimated to account for a good 15 per cent of Finland's forest industry's wood costs.

### **Moderate Growth in Labour and Energy Costs**

Since the 1997 collective wage agreement determines standard wage rates up until January 2000, the increase in the cost of labour has been very moderate in Finland this year. Having committed themselves to the general incomes policy settlement, both the wood products industry and the pulp and paper industry will experience a rise of about four per cent in labour costs in 1999. In addition, high unemployment figures have continued to retard wage drifts. Forthcoming wage agreements will determine the development of wages in the future, including those in the paper and wood products industries. Forest industry's labour productivity has increased rapidly due to continuously increasing production and relatively stable number of jobs over the past couple of years. However, EMU membership requires moderation in wage agreements.

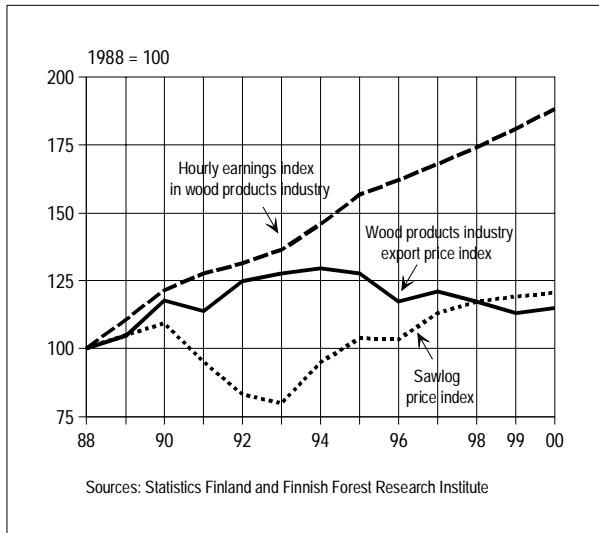
A steep rise in the world market prices of oil has caused the oil products wholesale price index to escalate by 18 per cent between January and August 1999. Meanwhile, the wholesale price index of elec-

tricity, gas and heat has decreased by about two per cent in Finland. The world market price of oil is projected to continue its growth next year, but the expected appreciation of the euro against the US dollar will curtail the price rise in oil products in Finland. All in all, increased oil prices will raise energy costs slightly in 1999 and 2000.

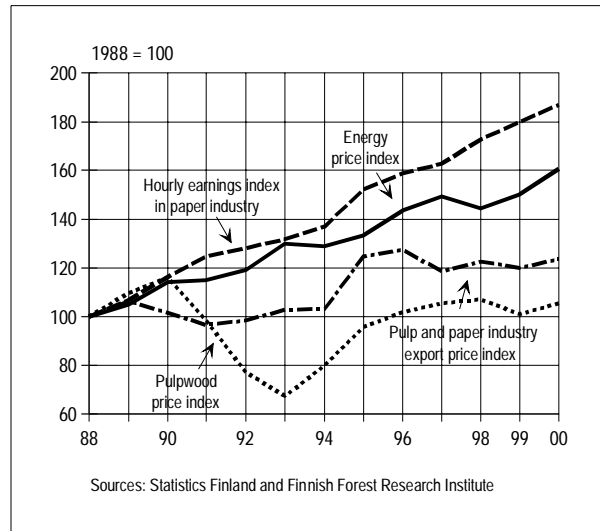
### Capacity Utilisation Rates

Heightened demand will increase Finnish forest industry's capacity utilisation rate. Nevertheless, owing to low production volumes in the beginning of the year, the utilisation rate will shrink from last year's 94 per cent to 92 per cent in 1999. However, capacity utilisation rates vary greatly from one branch of the forest industry to another. These differences are due to demand factors and the fact that the paper industry has increased its capacity more rapidly than the wood products industry.

The strong growth of construction activity in Finland has accelerated production in the wood



**Figure 8.** *Nominal Export Prices of the Wood Products Industry and Prices of Production Factors between 1988 and 2000est.*



**Figure 9.** *Nominal Export Prices of the Pulp and Paper Industry and Prices of Production Factors between 1988 and 2000est.*

products industry. In consequence, new sawnwood production record was set both in 1997 and 1998. Production continues to increase in 1999 as Finnish exports to Europe and Japan pick up speed. It is estimated that in 1999, the capacity utilisation rate of Finland's sawmilling industry will grow by an average of one per cent from last year's 94 per cent. In contrast, the Finnish markka export prices were about ten per cent lower in the summer of 1999 than at the same time last year. Moreover, the high price of sawlogs will weaken the profitability of Finland's sawmilling industry in spite of expectations for an increase in sawnwood export prices.

Finland's pulp industry is currently experiencing its third consecutive year of growth. Even though 1999 began sluggishly, the demand for pulp has picked up towards the end of the year and its prices have also increased. Finland's market pulp production capacity has grown, however, and, in consequence, its utilisation rate is projected to drop to 85 per cent. After a long period of downward development, a continued increase in pulp prices would make a positive contribution to the Finnish pulp industry's profitability.



The declining trend in the demand for papers and price development, especially in the beginning of 1999, has led to downtime in paper production. Moreover, Finland's production capacity for fine papers and magazine paper has grown. Therefore, the capacity utilisation rate is likely to remain below last year's level, i.e. at about 90 per cent. There are great differences between the various paper grades, however. For example, the demand for fine paper already took an upward turn in the spring and its output will top last year's performance by several percentage points. As for magazine papers, demand continues to look weak, but the markets are expected to pick up next year and make a positive contribution to utilisation rates. A parallel development trend can be seen in the demand for newsprint in 1999. As in the case of papers, paperboard has been in poor demand and production has shrunk by several percentage points. There has only been a slight increase in Finland's paperboard production capacity, but its utilisation rate will drop by one per cent on average, nonetheless.

### Weak Price Development Depresses Profits in 1999, but 2000 Promises Improvement

In 1998, the earnings of Finnish forest products companies amounted to FIM 13.8 billion (EUR 234 million) after financial items, topping the record set in 1995 by almost two billion. Compared to the preceding year, Finland's forest industry improved its earnings by more than a third in 1998 despite the drop in sawnwood and pulp prices and the overcapacity for fine paper production. The 1998 turnover of Finnish forest industry amounted to FIM 155 billion, of which about 100 billion were accounted for by domestic business units. Returns on capital employed were 11.6 per cent, i.e., almost the same as the previous year.

Poor paper demand in the beginning of the current year and a decline in export prices since the first half of last year will reduce the earnings of Finnish

forest products companies in 1999. In the end of the current year, improving export prospects and increasing prices of papers will have a positive impact on earnings, but they will fall slightly short of last year's level nonetheless. The demand for Finnish forest industry products as well as the industry's earnings and turnover are projected to grow in 2000. Moreover, profitability is also expected to improve from the current year's level as long as the appreciation of the euro remains moderate.

The corporate composition of the Finnish forest industries has changed greatly in order to safeguard competitiveness and increase returns to scale. Paper production has been concentrated in the three largest companies (Stora Enso, UPM-Kymmene and Metsäliitto-Group), and these companies also cover about half of Finland's sawnwood production. Increased efficiency in product development and raw-material procurement has also been the motive behind UPM-Kymmene's and Metsäliitto-Group's respective decisions to incorporate their sawmilling and wood-based panel industries. According to its corporate strategy,

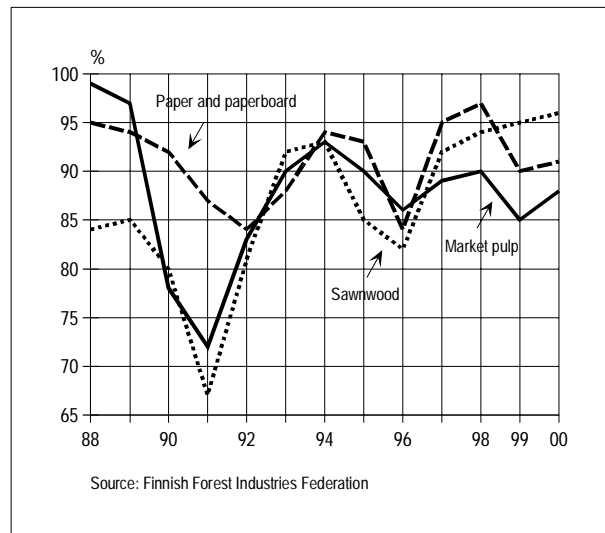


Figure 10. Capacity Utilisation Rates in the Forest Industry between 1988 and 2000est.

Stora Enso concentrates on its core function, which is paper production.

According to the Finnish Forest Industries Federation, the forest industry's investments amounted to about FIM 17 billion altogether in 1998 of which 66 per cent was placed in foreign investments. Domestic investments have remained at the

average yearly level of six billion between 1997 and 1998. In the current year and the next, domestic investments are estimated to amount FIM 5–6 billion. Since the forest industry's production machinery in Finland is mostly in top condition technically, the need to invest in existing capacity is relatively small.

## The Forest Industry's Cost Structure

The adjoining graph, based on official statistics, is intended to give an overall view of how the forest industry's costs were distributed in 1997. The pulp and paper industry comprises, in addition to pulp, paper and paperboard production, also the manufacture of converted pulp and paper products such as corrugated board, household papers and other products. The publishing and printing industry, however, is not included. The pulp and paper industry is characterised by a heavy use of inputs such as capital, energy, chemicals and fillers.

In addition to the sawmilling and wood-based panel industries, the wood products industry includes the manufacture of joinery products, wooden packaging and other similar wood-based products. This sector of industry is clearly more labour-intensive than the pulp and paper industry. Because of the prominent role of the sawmilling industry, wood costs constitute a larger share of the total costs there than in the pulp and paper industry. In 1997, primary processing accounted for 76 per cent of the total turnover of the entire woodworking industry, while the corresponding figure in the pulp and paper industry was 95 per cent.

According to the Financial Statement Statistics published by Statistics Finland, the 1997 combined turnover of companies in the pulp and paper industry totalled FIM 79 billion. As regards the wood products industry, the corresponding figure was FIM 26 billion. The former increased by 14 per cent from the previous year, and the latter by over 27 per cent.

Both sectors showed clearly positive net profits after financial items and depreciation. Return on capital employed amounted to 4.8 per cent in the pulp and paper industry and as much as 15.3 per cent in the wood products industry.

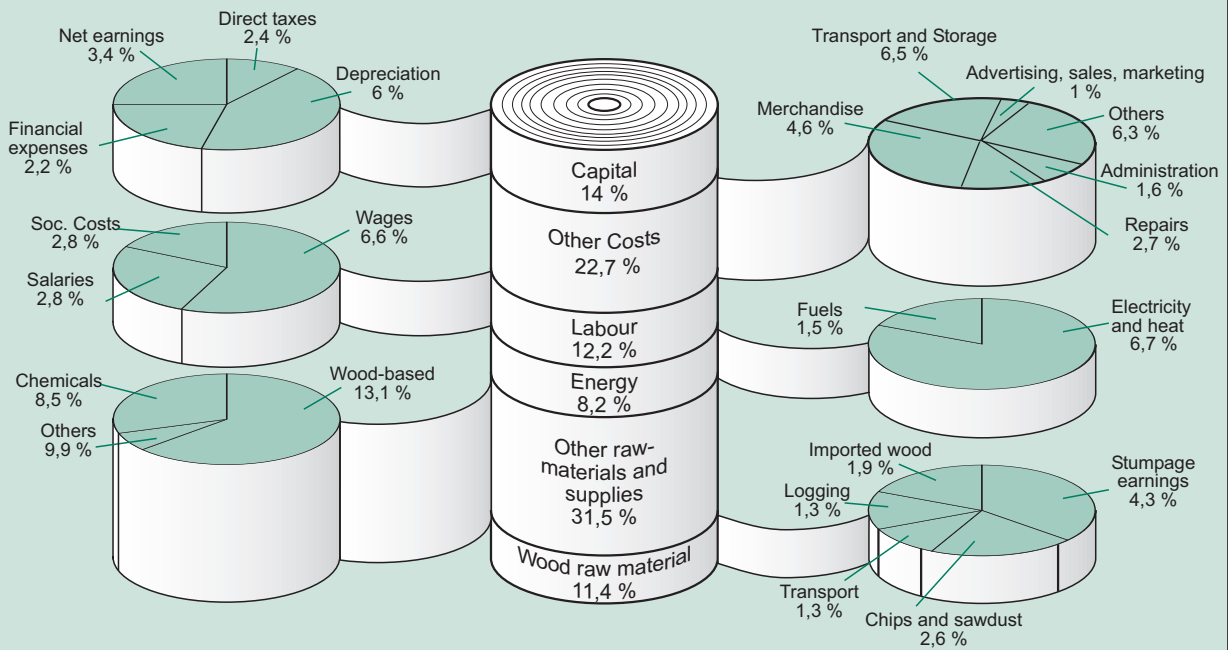
Wood raw material costs (stumpage prices, harvesting and transportation costs) constitute a considerable part of the costs of the first processing phase, especially in the wood products industry. In 1997, wood raw material accounted for 34.5 percent of the wood products industry's costs, whereas its portion in the pulp and paper industry was only 11.4 per cent.

In the pulp and paper industry, other raw materials and supplies constitute a larger cost item than in the wood products industry. Since both industries convert products of the first processing phase in their secondary processing, it is evident that products from their own respective sectors make up a large part of other raw material costs.

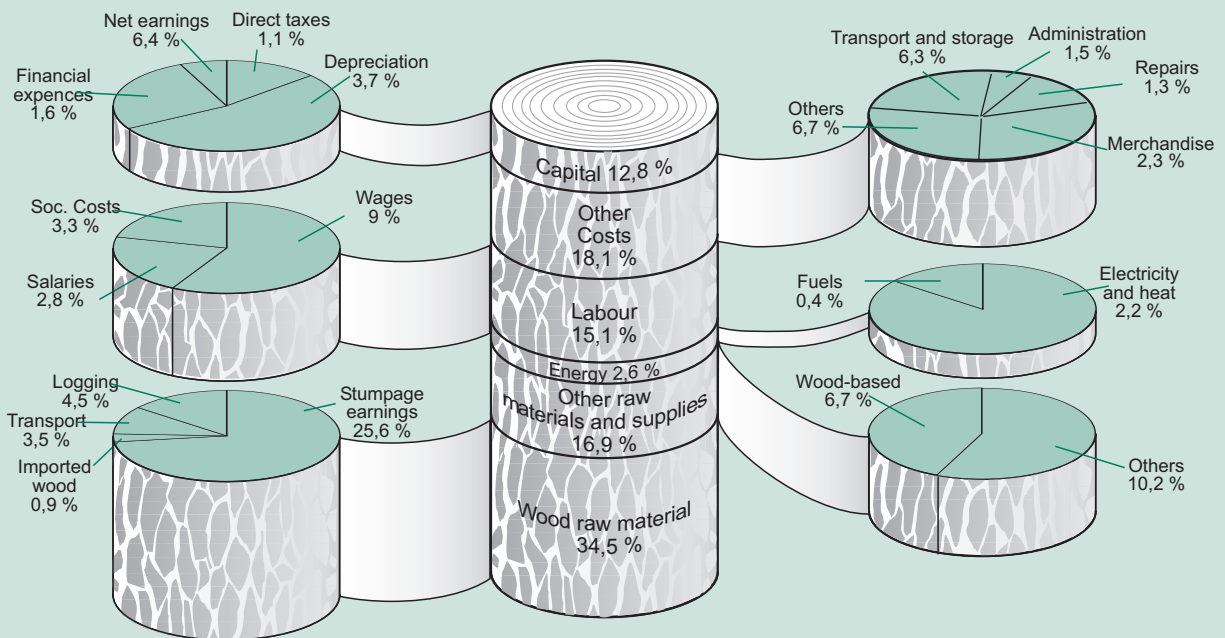
The cost item of other materials has grown as the forest industry has begun to focus more on its core business by externalising some of its services and auxiliary activities. Apart from purchases of merchandise, the largest cost items include transportation, storage, administration and repairs, and in the case of the pulp and paper industry also advertising and marketing expenses. The energy costs of the pulp and paper industry are considerably larger than those of the wood products industry.

Sources: Statistics Finland, Finnish Forest Research Institute

### Costs of the Pulp and Paper Industry in 1997, FIM 79 billion



### Costs of the Wood Products Industry in 1997, FIM 26 billion



Estimate: Metla

## 2.4 Labour Force in the Forest Industry

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*Employment in the forest industry will increase by about two per cent in 1999 in spite of production downtime in the beginning of the year. The average unemployment figures in the forest sector will shrink from seven per cent to six, which is about four percentage points lower than the projected average unemployment rate of the Finnish economy in the current year. In comparison, the unemployment figures of the sawmilling industry are still high, about eight per cent. In the pulp and paper industry, however, unemployment has been reduced to only four per cent. Since economic prospects are looking up, the employment situation may remain relatively positive in 2000.*

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### **Employment Situation Unchanged in the Wood Products Industry**

In 1999, the employment situation of the Finnish wood products industry will change very little from last year. Despite a production growth of two or three per cent, employment figures will remain unchanged in the sawmilling industry. The plywood industry, which has experienced the strongest growth in the sector, will increase the number of workers by about ten per cent. In other branches of the panel industry employment will continue to decline slightly.

The production volumes of particle board and fibreboard have been on a downward curve for the past two decades in Finland. During the past ten years, production has been cut by 30 per cent. At the same time plywood output has increased by 50 per cent and it is clear that the wood-based panel industry is specialising in plywood production.

The workforce of the Finnish joinery industry as a whole will remain at last year's level, i.e., at an average of 13 000 persons. Among the sub-sectors,

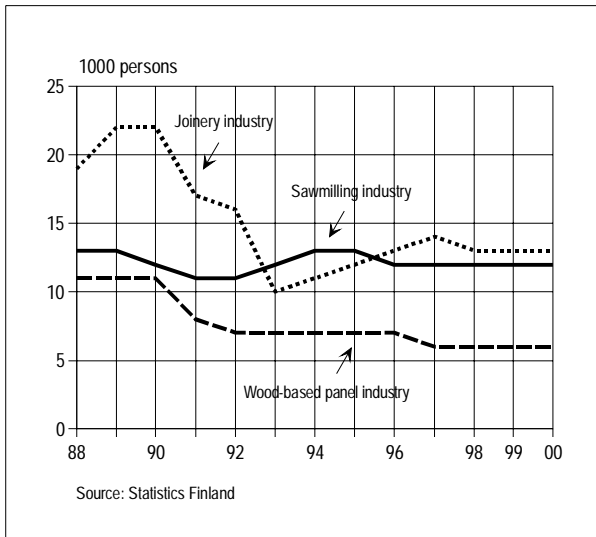
construction joinery is employing more people this year because demand has grown as a result of increasing construction activity. Other branches of joinery, in contrast, will have to continue to cut back their labour force. In the beginning of the 1990's, employment in the manufacture of wooden packaging and other wood-based products plummeted from 11 000 employees to about 4 000, and so far the industry has not been able to rebound from this level.

The unemployment rates of Finland's sawmilling and joinery industries will remain above the average level in the forest industry, i.e., at about eight per cent. The respective numbers of salaried employees, wage-earners and entrepreneurs out of the total number of people employed in this sector will remain unchanged. The number of entrepreneurs will stay at the average figure of 1 200 persons, which constitutes ten per cent of the persons employed in the sector. In the joinery industry, the number of entrepreneurs will average 2000, i.e., about 15 per cent of the total number of employees.

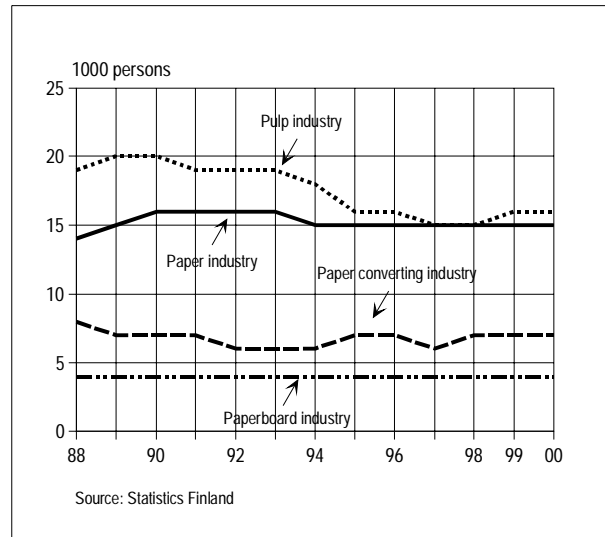
In 1999, the Finnish wood products industry will provide employment for about 32 000 persons altogether, and the closely related furniture industry an additional 14 000 persons. The share of entrepreneurs is 20 per cent in the furniture industry, which exceeds that of other sectors in the wood products industry.

### **Employment Improves in the Pulp and Paper Industry**

During the first half of the current year, the number of people employed in the Finnish pulp and paper industry has increased by about four per cent compared to the corresponding period last year. This growth has taken place despite production downtime and reduced output. It is the pulp and paper industry proper that has increased the number of workers, since the paper products industry still employs the same number of people as last year. The



**Figure 11.** Development of Employment in the Wood Products Industry between 1988 and 2000est., 1000 Man-years.



**Figure 12.** Development of Employment in the Pulp and Paper Industry between 1988 and 2000est., 1000 Man-years.

sector's unemployment rate has dropped from five to four per cent, which can be regarded as a very low figure. Since the publishing and printing industry that is closely connected to the pulp and paper industry has also increased the number of its employees by four per cent, these branches have created about 3000 new jobs in all.

So far, the number of employees in Finland's pulp and paper industry has not changed in 1999. In all branches of the paper industry, the greatest increase in employment figures has occurred in the number of salaried employees, which has grown by about 2000 people, thus raising their share from 30 to 35 per cent of the total. The escalating number of salaried employees has been explained by an increase in the amount of marketing, research and production development tasks, as well as by a need to hire more salaried employees to reduce the great amount of overtime work. As regards the publishing and printing industry, where half of the employees are salaried, the number of jobs for salaried

employees and wage earners has increased to an equal degree.

In 1999, the pulp and paper industry's employment rate is reckoned to total 42 000 persons and the publishing and printing industry's 36 000. Together with the wood products industry and forestry, the entire forest sector in the broad sense of the word will employ an average total of 147 000 persons. In 1998, the corresponding figure was 146 000 persons. While the employment figures of the Finnish economy as a whole have augmented by 63 000 persons in one year, the portion of employment provided by the forest sector has decreased from 6.5 per cent to 6.4.

In the light of the foreseeable economic development it seems that the positive employment situation of the Finnish forest industry and the entire forest sector may continue in 2000. This is due to a projected two-per-cent average rise in production in all the principal branches of the forest industry next year.

## An Employment Forecast for the Forest Sector between 2000 and 2030

Between 1997 and 1999, a working group called "Workforce 2017" appointed by the Ministry of Labour drew up estimates for medium-, long-, and very long-term development in labour demand and supply to provide a foundation for the strategy and courses of action to be followed in Finland's future labour policy. As a basis for these labour estimates, alternative curves were drawn for development in the economy and society. In this forecast, the forest sector was defined as consisting of forestry, wood products industry, furniture industry, pulp and paper industry and publishing and printing industry.

A forest sector employment forecast that follows the base curve of Finnish economic development works on the assumption that the forest industry will remain a significant source of livelihood and retain its current position in the national economy. In the medium-term forecast reaching up to 2005, the starting point is the projected growth of the forest industry's capacity due mainly to renewal investments, which corresponds to the projections of the National Forest Programme, for example. Due to increased capacity annual fellings are predicted to increase by between five and ten million cubic metres by 2010. It is presumed that silviculture will remain at its current high level, and that the use of wood as a source of energy will escalate. Moreover, it is also expected

that the objectives of programmes such as Puu-Suomi (Wood Finland) and Puun Aika (Time for Wood) concerning the development of the mechanical forest industry will be realised at least in part.

Due to a marked increase that is forecast to take place in the use of wood, employment will not lessen in the forest sector in the first half of the next decade, and even after that its decrease will be considerably more moderate than during the previous decades. According to the very long-term projection, the forest sector's share of employment in Finland will have dropped to five per cent by 2030. Jobs in forestry are expected to continue their decrease a little faster (by c. 30 per cent) than in the forest industry (by c. 20 per cent). This is due to the fact that it is possible for the forest industry to expand by importing more raw material and by increasing the degree of processing in its products, whereas in the case of forestry there are physical limitations to production expansion. Finland's employment rate as a whole is projected to rise by a couple of per cent in the same time period. The forest sector employment forecast that follows the base curve and is the most likely of all to be realised is shown in the adjoining table.

As regards the level of the Finnish economy as a whole, model calculations were also made for a fast-growth curve which exceeds the rate of economic-

*Table. Employment in the Forest Sector in 1998 and a Forecast for the Period between 2000 and 2030. Number of Persons Employed.*

Year	Forestry	Forest Industry	Forest Sector	Finland's Economy	Share of Forest Sector %
1998	24 000	122 000	146 000	2 222 000	6.6
2000	23 000	114 000	137 000	2 271 000	6.0
2005	22 000	114 000	136 000	2 346 000	5.8
2010	20 000	110 000	130 000	2 347 000	5.5
2017	18 000	106 000	124 000	2 323 000	5.3
2030	17 000	96 000	113 000	2 255 000	5.0

Source: Ministry of Labour 1999.

growth indicated by the base curve by about one percentage point. In relation to the base curve, the fast-growth curve shows a higher growth of labour productivity which would mean that, at best, only half of the increase in economic development would be manifested in improved employment figures. Nevertheless, Finland's labour resources will not be able to meet the demand once the large post-war age groups have retired, even though the participating rate in working life is projected to increase. The fast-growth curve will, therefore, lead to a strong net immigration need in the 2010's.

In the forest sector, the fast-growth curve would result in a full use of the industry's capacity, an increase in productivity, and a growing use of imported raw material and labour. Even if the world market demand for forest industry products was to grow, for example according to the FAO's projections, augmentation of capacity would not be a viable option owing to a general shortage of labour and the fact that wood resources would already be used to the full because of replacement investments. In the fast-growth scenario, economic growth would be likely to shift to fields other than the forest sector, whose relative importance to Finland's economy would shrink faster than indicated by the base curve.

According to the slow-growth calculation curve, the rate of economic growth would sink because of problems in the international economy, and finish up about one percentage point lower than in the base-line scenario. Declining growth would cause a slowdown in the growth rate of labour productivity, and

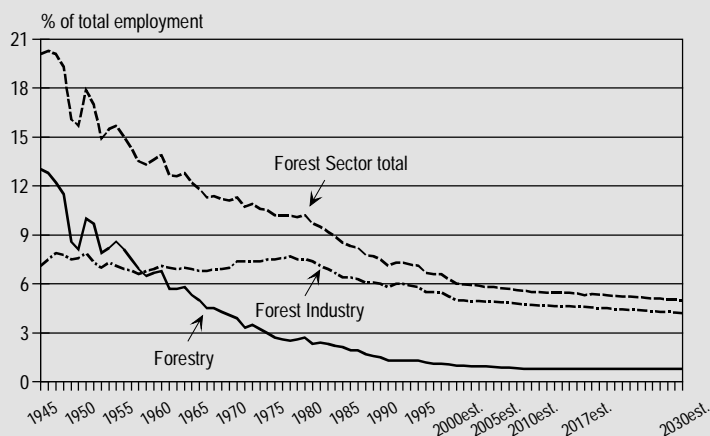
labour supply would also remain weaker than that indicated by the base curve. Unemployment would take an upward turn again in the first decade of the 21<sup>st</sup> century and remain at the level of 300 000 people up until the 2010's.

The effects of a decline in growth would first and foremost be felt in the service sector, and employment programmes based on Finland's natural resources might subsequently become topical again. The forest sector's relative importance to the Finnish economy would become evident again according to the slow-growth alternative.

The development indicated by the base curve, which the working group who compiled the forecasts consider as the most likely scenario, is, from the point of view of the forest sector, fairly optimistic on the one hand and conservative on the other. In accordance with the basic presuppositions that shape the curve, there will be no major, unexpected changes. Among other things, attempts to expand the forest sector's traditional production by means of renewal and repair investments are expected to come off according to plan – exactly as projected in the National Forest Programme.

*Source*

Työllisyys ja hyvinvointi uuden vuosituhannen alkaessa (Employment and welfare in the beginning of the new millennium). Final report of the Workforce 2017 working group. Labour policy study 200. 236 pages + appendices. Ministry of Labour, Helsinki 1999. (In Finnish).



*Figure.*  
The Forest Sector's Share of Finland's Total Employment Rate between 1945 and 1998, and a Forecast for the Period between 2000 and 2030.

## 3 Forestry

### 3.1 Utilisation of Wood Resources

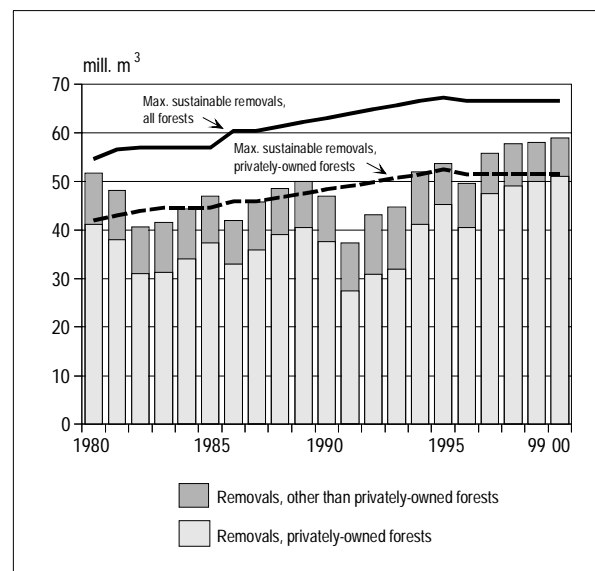
*Between 1996 and 1998, the industrial use and harvesting of wood reached record levels. The Finnish industries used an average of 63 million cubic metres of wood per annum, out of which total 54 million cubic metres were of domestic origin. The utilisation of wood is expected to increase markedly in 1999 and 2000. Finland's abundant wood resources will be sufficient to meet industry's needs. The only exception is birch, whose use exceeds the estimated maximum of sustainable removals by almost 45 per cent.*

There are 23 million hectares of forest in Finland, which includes a growing stock of over 1900 million cubic metres, 46 per cent of which is pine, 36 per cent spruce and 18 per cent various broad-leaved species of the total respectively. The annual increment of growing stock is approximately 76 million cubic metres.

An area of 2.5 million hectares, most of it situated in Northern Finland, has been left wholly or partly outside commercial wood production. The total area allotted to forestry is a good 20 million hectares, with a growing stock of slightly over 1800 and an annual increment of 73 million cubic metres.

Sixty-six per cent of Finland's commercial forest land belongs to private forest owners, twenty

per cent to the state, nine per cent to companies and five per cent to other ownership categories. Most of the state-owned forests are situated in the north of the country which explains why their average increment is low compared with forests belonging to the other owner categories. Privately-owned forests account for 75 per cent of the growing stock increment, state-owned for 10 per cent, company-owned for 10 per cent, and other owners' forests for 5 per cent. Furthermore, privately-owned forests also play a key role in wood supply, since they produce between 70 and 80 per cent of the Finnish wood used by industry. However, if we take imported wood into account, the figure is reduced



**Figure 13.** Removals of Industrial Wood and Maximum Sustainable Removals.



to 60 or 70 per cent. Between 1996 and 1998, the removals of industrial wood averaged 54 million cubic metres. In 1999 and 2000, this figure is expected to increase by between 4 and 5 million cubic metres.

The calculations of the maximum sustainable removals are based on data concerning the growing stock, its structure and annual increment, as well as the assumption that silvicultural practices be maintained at their present level. These calculations indicate how much removals could be increased without jeopardising future potential removals. The calculation made at the Finnish Forest Research Institute is an optimisation calculation where, among other things, price relationships between different timber assortments affect the structure of potential removals. Due to the continuing increase of growing stock and, at least up until recent years, a relatively strong silvicultural input, sustainable removals have grown steadily. Nevertheless, in the light of the most recent calculations, it seems that their growth has come to a halt. However, with wood consumption at its current level, sustainable removals will in any case increase in the future.

Occasional logging in excess of the sustainable felling potential will not jeopardise future sustainable removals. Finland's forests allow plenty of scope for silviculturally justifiable adjustments of this kind. This applies to spruce stands in particular. In Southern Finland's spruce-dominated stands, the average growing stock is 166 cubic metres per hectare, compared with only 98 cubic metres per hectare in pine-dominated stands. Accordingly, spruce removals have been particularly extensive in recent years, and, in consequence, the growing stock in spruce stands may have decreased slightly.

Over the past twenty years, Finland's forest resources would have allowed removals considerably greater than those actually carried out (Figure 13), but in recent years, cuttings have increased more rapidly than estimated maximum allowable removals. Especially in Southern Finland, the potential removals exceed the actual cut.

**Table 9.** *Industry's Use of Wood and Maximum Sustainable Removals.*

Tree species	Use of wood 1996–98	
	mill. m <sup>3</sup> /a	% of max. sustainable removals
Pine	24.1	76
Spruce	25.3	105
Birch	12.8	145
Total	62.2	96

Imported wood is included in use of wood.

Table 9 shows a comparison of the industrial use of wood in relation to the maximum sustainable removals. In addition to the volumes mentioned in the table, industry uses a certain amount of wood where the species is not specified. The use of non-industrial wood is of minimal importance. The comparison has not been presented by timber assortment, since in practice the difference between sawlogs and pulpwood is not always clear: for example, some pulpwood is also produced during sawlog harvesting, the pulp industry uses large volumes of sawmill chips, and so on.

The demand for birch exceeds Finland's maximum sustainable removals by almost 45 per cent. Consequently, nearly half of the birch pulpwood used by industry is imported. It is perhaps a little surprising that according to Table 9, Finland's spruce resources are also being exploited to the full (spruce imports are minimal). However, it is possible and silviculturally justifiable to carry out considerably larger removals in spruce stands than indicated by the level used in this comparison, especially as regards spruce sawlogs. According to calculations of potential removals, the volume of sustainable spruce cuttings can already be increased in about ten years from now. Nonetheless, it is clear that the species with the greatest and most readily available potential for increased removals is pine.

## 3.2 Roundwood Markets

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*In 1999, Finland's commercial fellings will remain almost at a record level, viz. 55 million cubic metres, owing to the growth in the demand for forest industry products towards the end of the year. Next year, the industry's need for roundwood will continue to grow, but because of an increase in the use of imported wood there will only be a slight increase in domestic commercial fellings.*

*The good sawnwood demand and strengthening export prices of the pulp and paper industry will increase the demand for roundwood and raise sawlog and pulpwood prices in the end of 1999. However, due to price cuts in the beginning of the year, the only ones to rise in comparison with last year will be spruce sawlog stumpage prices. On average, the prices of pine and birch pulpwood will remain between six and seven per cent lower than in 1998.*

*The slight upward trend in stumpage prices which has begun in the second half of the current year is expected to continue in 2000 and top this year's prices by one or two per cent. Price rises continue to be curbed by increasing wood imports and the fact that forest industry is conducting more fellings in their own forests instead of buying the wood from domestic non-industrial forest owners.*

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### **Demand for Roundwood Continues to Be Keen**

The demand for wood will increase towards the end of 1999 and continue on an upward curve throughout 2000. This development is due to construction activity which continues strong in Europe and in Finland, as well as to a strengthening demand for pulp and paper.

The demand for sawlogs will remain steady in 1999 and 2000, because Finland's sawnwood production is expected to increase by two per cent in

both years. This increase is caused by the growth of construction both in Finland and in the euro-11 countries, which constitute an important market for Finnish sawnwood exports. Construction investments are projected to increase by 3 per cent in the euro area this year and by 2.5 per cent the next.

Construction activity will show particularly strong growth in the United Kingdom, and to pick up somewhat in Germany, too. These countries constitute the most important export markets for Finland. Moreover, construction activity is also expected to remain reasonably strong in the United States next year, which, coupled with the recovery of the Asian economies, will reduce the risk of oversupply of sawnwood in the European market.

At the end of July, the forest industry's inventories of softwood sawlogs were low, which, together with the sound sales of spruce sawnwood, has increased the demand for spruce sawlogs in particular. The demand for pulpwood has also grown from the summer as orders for newsprint and magazine paper have increased. However, because the year began weakly, the output volumes of paper and paperboard will remain slightly smaller than last year. In contrast, the production of pulp will grow by one per cent. Thus, the industry's need for pulpwood in the current year will remain at last year's level.

In 2000, economic growth is expected to accelerate from the current year's level in those European countries that are important to Finland's forest products exports. In consequence, the production of sawnwood, pulp, paper and paperboard will increase by two per cent, which will raise industry's need for sawlogs and pulpwood to a record level next year.

### **Roundwood Supply on the Increase**

Forest industry and forest owners could not reach an agreement on roundwood price expectations in the spring of 1999. Furthermore, the Finnish Office of Free Competition decided not to extend the tempo-

**Table 10.** *Commercial Fellings and Roundwood Imports.*

Timber assortment/ owner category	1998 mill. m <sup>3</sup>	1999est. <sub>3</sub> mill. m <sup>3</sup>	Change %	2000est. <sub>3</sub> mill. m <sup>3</sup>	Change %
Commercial fellings, total	55.1	54.7	-1	55.3	+1
Private forests	48.9	47	-4	47	0
Forest industry owned forests	2.1	3.4	+62	4	+18
Forest and Park Service forests	4.1	4.3	+5	4.3	0
Sawlogs	27.7	28	+1	28.1	0
Pulpwood	27.3	26.7	-3	27.2	+4
Roundwood imports	12	13.8	+15	14.7	+7
Commercial fellings and roundwood imports, total	67.1	68.5	+2	70	+2

rary permit for price co-operation between forest owners. The lack of a common agreement on price expectations decelerated the roundwood sales somewhat in the early autumn of the current year.

In September and October, however, timber sales have picked up almost in the usual manner. This development has, in particular, been boosted by an increase in spruce sawlog stumpage prices which have soared to record heights along with increasing exports and prices of spruce sawnwood. In addition, the prices of pulpwood have also taken a slight upward turn after the summer.

Nevertheless, the forest industry's roundwood purchases are currently still lagging slightly behind last year's level. In early autumn the industry has been able to satisfy its wood needs by increasing the volume of imported wood and using wood from their inventories. Fellings in the forest industry companies' own forests are also expected to show a marked growth in the current year.

The supply of domestic wood is forecast to remain fairly robust this year and the next, although

the lack of a price agreement continues to retard the timber trade in some regions. On the other hand, poor grain crops in Southern Finland and the consequent, relatively low agricultural income will increase timber supply. Also the various guarantee and additional-price schemes devised by buyers, as well as an imminent increase in wood imports are expected to increase the domestic wood supply.

### **Current and Imminent Imports Curb Pulpwood Price Rise**

Towards the end of 1999, Finland's exports of pine and particularly spruce sawnwood will increase and their prices consolidate. Strong demand will raise the prices of spruce sawlogs in the end of the current year so that the average stumpage price will increase by four per cent compared to last year. The demand and export price development of pine sawnwood and birch plywood have not equalled those of spruce, and in consequence, the average prices of pine and birch sawlogs will remain at last year's level,

approximately. The price development of birch sawlog is also constricted by strongly increased imports.

In 2000, sawlog prices are projected to rise a little owing to an increase in sawnwood production and strengthening export prices. However, escalating supply in Finland and increasing sawlog imports - especially imminent imports - will reduce the price rises. The average stumpage price of spruce sawlogs is estimated to rise by about two per cent, and that of pine and birch sawlogs by one per cent compared to the current year.

The increase in the Finnish pulp and paper industry's output and export prices will raise pulpwood prices in the last quarter of 1999. However, owing to price reductions in the beginning of the year, the average stumpage prices of pine and birch pulpwood will show a decline of between six and seven per cent compared to the previous year. The growing output of newsprint and magazine paper will create opportunities for spruce pulpwood demand to continue steadily. Nevertheless, the average price of spruce pulpwood is likely to remain at last year's level in 1999.

In 2000, pulp and paper production is expected to increase and its export prices rise, but the prices of pine and birch pulpwood will only rise by one per cent. There are, however, significant regional differences: in areas of robust demand in Southern Finland, prices may rise considerably above aver-

age, whereas in Northern and also partly in Eastern Finland they may be liable to decline a little. In northern parts of the country, long transportation distances and the small average size of stems reduce stumpage prices, whereas in Eastern Finland the prices are depressed by imported wood from Russia. The prices of pine pulpwood are kept low not only by increased imports but also by the domestic oversupply and abundant felling potential.

An increase in the production and export prices of magazine papers is projected to raise the price of spruce pulpwood by two per cent in 2000. However, spruce price rises are also curbed by the continued growth of imports.

### **Use of Imported Roundwood Continues to Increase**

Roundwood imports will break another record in Finland this year by reaching a volume of 13.8 million cubic metres. This constitutes about one fifth of the country's total use of roundwood, and is worth about FIM 2.7 billion (about EUR 450 million). If uncertainty continues to grow on the Finnish roundwood market next year, wood imports are likely to exceed this level by a few million cubic metres.

More than half of the birch pulpwood and also one third of birch sawlogs used in Finland in 1999

**Table 11.** Average Stumpage Prices for Non-Industrial Private Forests.

Wood assortment	1998 FIM/m <sup>3</sup>	1999est. FIM/m <sup>3</sup>	1999est./1998 change, %	2000est./1999est. change, %
Pine sawlogs	273.2	272	0	+1
Spruce sawlogs	227.5	236	+4	+2
Birch sawlogs	271.6	269	-1	+1
Pine pulpwood	94.2	88	-7	+1
Spruce pulpwood	132.8	132	0	+2
Birch pulpwood	94.0	88	-6	+1

## Stumpage Price Index and Forest Product Export Price Index

Both the forest products export price index and the stumpage price index rose in 1998. The forest products export price index, which measures the average change in the real prices of forest products, is forecast to decline by about one per cent in 1999 from last year due to a temporary decline in export prices in the beginning of 1999. The price development of product categories is divided in 1999: the nominal export prices of sawnwood and wood products are expected to rise, whereas the prices of paper and paper products will decline. The real export price index is projected to rise in 2000, if the favourable development in the end of the current year will continue in forest products markets.

In 1998, the stumpage price index measuring the average change in the real-value stumpage prices moved upwards for a fifth consecutive year. However, the growth slowed down. The nominal stumpage prices of sawlogs increased by two to three

per cent, whereas the prices of pine and birch pulpwood declined compared to the previous year. In 1998, the stumpage price index rose above the long-term trend between 1978 and 1998. The decline in the trend is mainly due to the deep recession in the Finnish economy during the early 1990's.

The development of real stumpage prices during the first half of the current year will raise the stumpage price index in 1999, even though the annual increase is smaller than in the previous two years. Therefore, the nominal stumpage prices will develop in the second half of 1999 roughly as they did in the same period last year.

The strengthening demand for domestic roundwood is restricted by the increasing roundwood imports next year. The nominal stumpage prices will rise only moderately in 2000, and consequently the stumpage price index measuring the development of real prices will decrease due to a higher inflation rate.

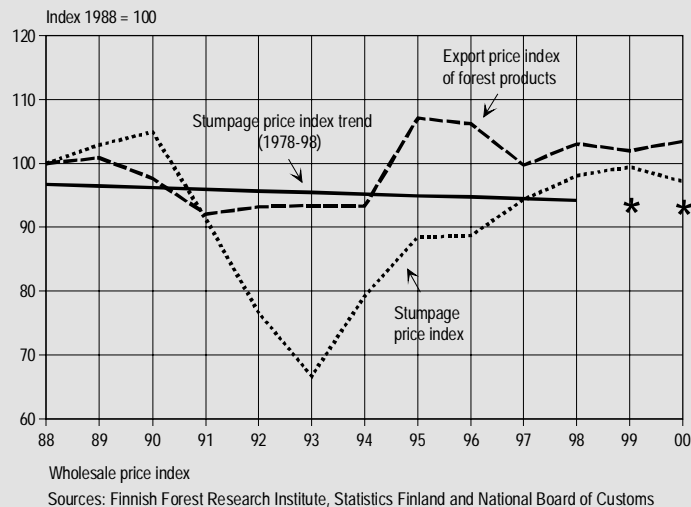
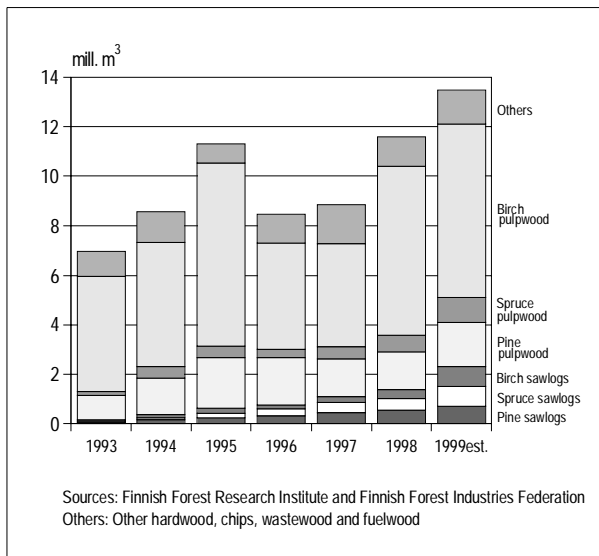


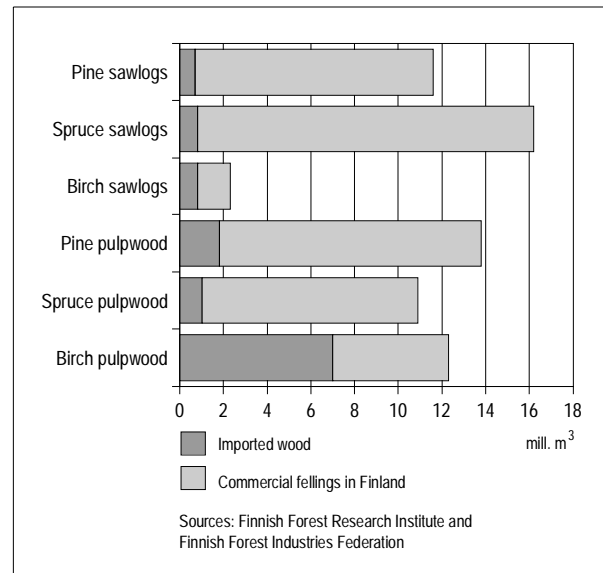
Figure. Real stumpage price index, forest product export price index and stumpage price index trend between 1988 and 1998 and forecasts for 1999 and 2000.

are of foreign origin. The imports of softwood sawlogs and spruce pulpwood have also grown: the imported volumes of spruce and pine sawlogs are record-high this year and almost one in ten logs of spruce pulpwood comes from beyond the Finnish borders.

Whether import volumes will continue to increase depends not only on the Finnish roundwood market situation, but also on the harvesting conditions in Russia, which is the origin of most of the timber imports into Finland. Compared to birch and pine pulpwood, quality requirements are considerably stricter for sawlogs and spruce pulpwood, which has so far limited their imports. However, Russia's need for foreign currency creates favourable conditions for increasing imports into Finland. Nevertheless, this development can be altered by the political and economic instability in Russia.



**Figure 14.** Wood Import Volumes and Distribution by Timber Assortment between 1993 and 1999est.



**Figure 15.** Wood Imports and Commercial Fellings in Finland by Timber Assortment, 1999est.

### 3.3 Investments and Profitability of the Non-Industrial Private Forestry

Total investments in timber production will amount to over FIM 1 billion next year in non-industrial private forestry. In real terms this level was last achieved in the early 1990's. In compliance with the National Forest Programme, government subsidies for timber production will increase by about 20 per cent in 2000 compared to the current year. The main emphasis is on the tending of young forests and, in some areas, also on ditch cleaning and supplementary ditching. By increasing the amount of public funding, private forest owners are also encouraged to add their own input in timber production investments.

An increase in the real unit costs will slightly weaken the annual operating margin of forestry this year and the next. The unit cost indexes of forest

*regeneration and silviculture, forest improvement works as well as forest road construction increased in 1998. The growth will continue in the current year and the next but at a slowing pace, however. The unit cost increases together with the decreasing stumpage prices will keep the annual operating margin in forestry on the downward trend this year and the rise in the unit costs of timber production is projected to decrease the operating margin also in 2000.*

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### **Forest Owners' Own Inputs Record-High**

Since 1994, forest owners' own inputs in timber production have continuously increased in real terms. Last year these inputs amounted to as high as FIM 675 million (EUR 113 million), which in real terms, is the all-time record for private forestry. Private inputs are expected to increase a little in the current year. However, total investments in private forestry will still fall slightly short of FIM 1 billion.

In 2000, statutory forest regeneration obligations and increased public inputs in timber production will continue to increase total investments in private forests. In real terms this means a return to the 1993 level and surpassing FIM 1 billion. Nevertheless, total inputs will not reach the peak levels of the early 1990's.

### **Government Subsidies Primarily Concentrated on the Tending of Young Forests**

In its budget proposal for 2000, Finland has reserved almost FIM 370 million for silvicultural and forest improvement works with the aim to safeguard sustainable timber production in private forests. The sum exceeds this year's budgetary allocation by almost FIM 60 million. As regards the implementation of the budgeted works, the emphasis is on the

tending and improvement of young forests; into this purpose has been allocated FIM 135 million, which almost equals the combined funding reserved for other silvicultural works. In addition, the budget proposal includes FIM 90 million for planning, supervision, forest communication, etc.

The Finnish government's financial support clearly reflects the commitment of the Ministry of Agriculture and Forestry to the Tending of Young Forests campaign (1998–2002). Last year's public funding covered the treatment of 115 000 hectares of young forests. In the current year, the size of the area will amount to about 130 000 hectares. Furthermore, the funding reserved for 2000 will enable the treatment of as many as 150 000 hectares of young forests. Together with the treatment areas financed entirely by forest owners themselves, the total area of young forests to be treated will be almost 200 000 hectares next year.

### **The National Forest Programme Sets Extensive Objectives for Private Input**

Finland's National Forest Programme, reaching up to 2010, was finalised in the current year. In addition to Finland's needs, the programme also aims to meet new challenges in international forest policy. The implementation of the Forest Programme will begin next year with the co-operation of the various parties involved. The government will play an important role in the implementation, follow-up, development, and financing of the programme.

The budget proposal for 2000 shows a considerable increase in the appropriations intended for the promotion and supervising of private forestry compared with the current year. The grounds for this increase can be found in the objectives stipulated in the National Forest Programme. State financing of silvicultural and forest improvement works is to grow by 20 per cent. Because grants and loans will be transferred from previous years, it will be possible to increase the public input to meet the targets set in the Forest Programme.

## What is the Optimal Forest Road Density in Finland?

A recent study by the Finnish Forest Research Institute (Metla) shows that using the current cost level of road construction and timber forest haulage, the optimal density of forest roads in Southern Finland would be 10.5 metres per hectare. However, the Ministry of Agriculture and Forestry as well as Forestry Development Centre Tapio have for some time considered the average target to be 15 metres of forest road per hectare in Southern Finland. The latter figure exceeds the optimum calculated in the new study by more than one third.

The optimisation calculations conducted in Metla took into consideration the two most important benefits of forest roads: the reduction of forest haulage distances as well as silvicultural and forest improvement costs. Other benefits offered by forest roads for, e.g., recreational purposes or local traffic were not included in the calculations, since it would require an extensive, separate study to analyse and appraise them. Moreover, the calculations also excluded the activating effect of forest roads on timber supply and silvicultural operations.

Particular emphasis should be laid on the results of the sensitivity analysis, which indicate that road density may deviate considerably from the computed optimum without causing significant economic losses. The total costs in Southern Finland will increase by more than ten per cent only when the density is below 7 or over 16 metres per hectare. The optimum solution is not particularly sensitive to changes in other calculation factors, either. For example, a 20-per-cent decrease in road construction costs or an equally large escalation in timber forest haulage costs would increase the optimum density only by one metre.

### ***A Lack of Calculations on Additional Advantages***

A high road density objective has been justified by its additional advantages to timber procurement logistics and the multiple use of forests. A dense forest road network has also been claimed to reduce harvesting damages caused by forwarders, to make

timber harvesting easier to organise, and to promote consideration of environmental values by improving the profitability of small-scale forest management.

In practice the benefits derived from these factors have been estimated to equal the actual shortening of distances of timber haulage in the forest. However, there are no reliable calculations concerning this. For example, the utility of exceeding the optimal road density in order to facilitate the multiple use of forests is questionable. Moreover, the justifications tendered for dense road network fail to take the potential damages to the ecosystem or landscape into consideration.

The construction of new forest roads is often also justified with the claim that a sufficient road network is an indispensable prerequisite for modern forestry. This is true, no doubt, but in order to determine the importance of forest roads, a distinction should be made between the benefits derived from the existing network as opposed to new roads. From an economic point of view it is clear that on the national level the marginal utilities of forest roads are on a downward curve, meaning that each new road benefits the society less than the previous one.

The construction of additional forest roads has also been justified by their profitability for private forest owners. However, since this subject has not been studied, it is difficult to make any strong assumptions about it. Moreover, it must be noted that although a new forest road may be profitable for a private forest owner, it is not necessarily so for the society.

### ***Forest-Road Construction Volumes have Exceeded the Objectives Set in the Forest 2000 Programmes***

In the National Forest Programme road construction is still one of the main areas of emphasis for public subsidies. The construction of new roads is reckoned to taper off from the current level of 2000 kilometres a year to about 1000, but there will be a corresponding increase in the basic improvement of old roads. However, the programme gives no clear justifica-



tions for the construction of *new* roads.

Against this background it is interesting to see to what extent the forest-road construction objectives of the Forest 2000 Programme, which was drawn up in the mid 1980's, have been realised. The adjoining graph shows that the targets set in the Forest 2000 Programme for the period between 1990 and 1995 were exceeded by almost 40 per cent. In contrast, all other forestry-related works failed to meet their objectives during the same period.

The results do not change if we view the objectives of the updated Forest 2000 Programme as a basis for comparison. For example, ditch cleaning and supplementary drainage only reached 50 per cent of its target level, whereas forest road construction surpassed it by 22 per cent.

The question is, has the appropriation of public funds for various forestry works served its purpose in

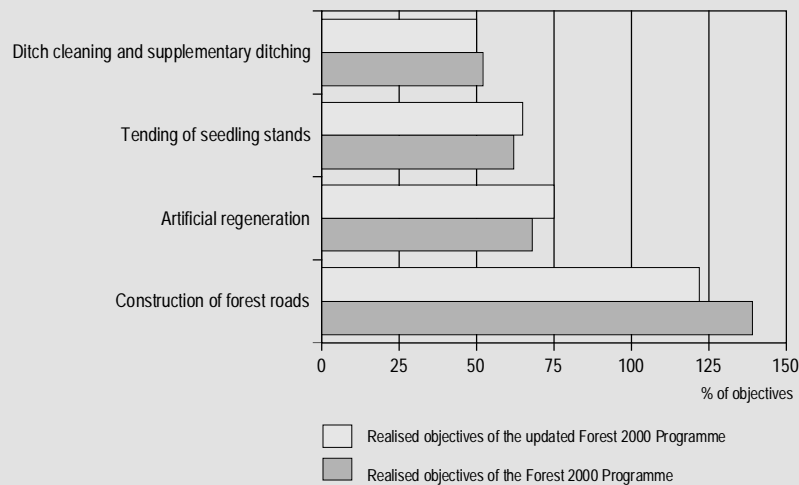
the 1990's? In 1997, changes were made to the conditions for obtaining different subsidies but it remains to be seen whether the changes were sufficient or whether the objectives of forest road construction will still be exceeded in the future.

**Sources:**

The First Ten-Year Period of the Forest 2000 Programme 1986-1995. 1998. Ministry of Agriculture and Forestry. 56 pp.

The updated Forest 2000 Programme. Memorandum of the Forestry Section. 1991. Ministry of Agriculture and Forestry. 68 pp.

Viitala, E-J. & Uotila, E. 1999. Optimal Road Density for Private Forestry. *Metsätieteen aikakauskirja 2/1999*: pp. 167-179. (in Finnish).



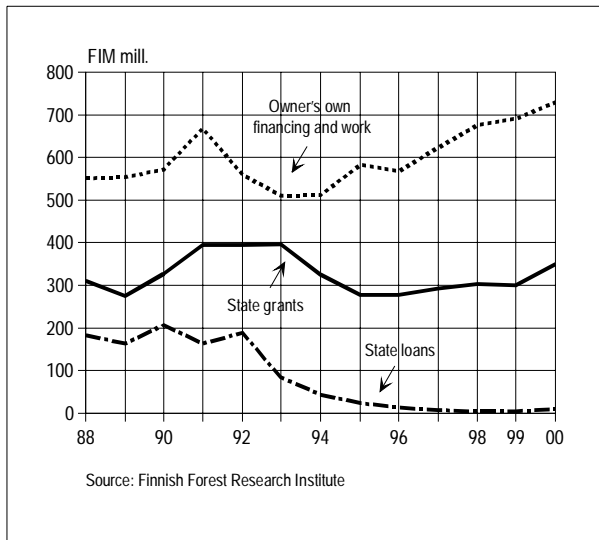
*Figure. Realisation of the Objectives of the Forest 2000 Programme by Work Category, %.*

Forest 2000 Programme: average realisation rate of annual objectives between 1990 and 1995.

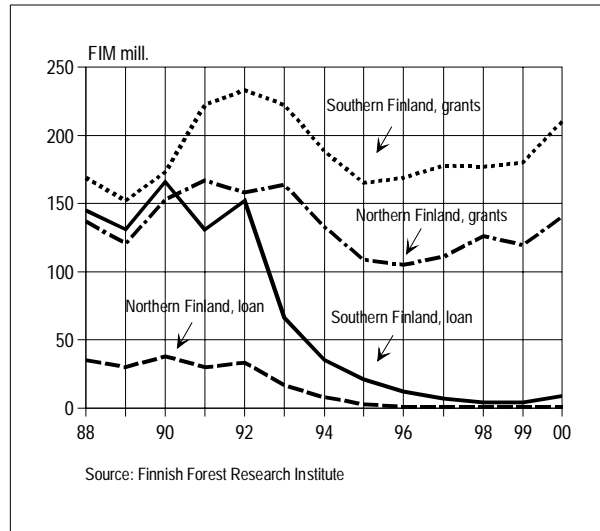
Updated Forest 2000 Programme: average realisation rate from 1991 till 1997 of the annual objectives set for the period between 1991 and 2000.

The state grants to promotion and supervision organisations in forestry will also be increased by almost 20 per cent. The additional grants will be concentrated on advisory services for forest owners and on forest planning. However, the Regional Forestry Centres will not meet the objectives of the National Forest Programme since these services will not yet be activated in 2000. Moreover, there will be no increase in the state grants to promotion of sustainable forestry as yet next year.

The total objective for silvicultural and forest improvement works within the National Forest Programme was set at FIM 1.5 billion per year. The sum includes the government's and the forest industry's inputs in timber production. Over the previous years, the combined timber production investments in forests belonging to the state and the forest industry have amounted to between FIM 150 and 200 million. The Forest Programme's suggestions for silvicultural works do not apply to these owner categories. Therefore, it must be presumed



**Figure 16.** Financing of Silvicultural and Forest Improvement Works in Non-Industrial Private Forests between 1988 and 2000est. (expressed in 1998 prices, EUR=FIM 5.95).



**Figure 17.** Public Funding of Non-Industrial Private Forestry in Southern and Northern Finland between 1988 and 2000est. (expressed in 1998 prices).

that the additional input required to reach the target level has to be found from private forest owners.

In 2000, the total timber production investments in non-industrial private forests are projected to rise to just under FIM 1.1 billion. In practice, this indicates that the Forest Programme will fall short of the stipulated target level by between FIM 200 and 300 million in its first year. In the future, therefore, private forest owners should increase their own input from last years level of a good FIM 600 million to approximately FIM 900 to 1000 million so that the Forest Programme's total investment level could be reached.

## The Lapland Law Extended

The regeneration of Lapland's low-yielding forests with the aid of the so-called Lapland law expired in the end of 1998. However, at the time of the law's expiry, there were so many authorised projects that Parliament sanctioned an extension to the financing until the end of 2002. This way Northern Finland's

low-yielding regeneration sites are still guaranteed a special financing arrangement.

The need of funding for targets covered by the Lapland law amounts to approximately FIM 30 million. In addition, regeneration projects approved under the previous forest improvement law were granted a period of transition until the end of 2002 providing this that the financing decision has been made by the end of this year. In this respect, too, the decision concerns mainly Northern Finland. The need for government funding for the aforementioned regeneration works adds up to an average total of FIM 100 million.

### Investment Rate in Private Forestry Rising

In 1998, stumpage earnings from non-industrial private forests rose to FIM 9.4 billion. Fellings have continued to concentrate on sawlogs in the current year. The stumpage price index will fall a little and the volume of commercial fellings will drop by about four per cent from the previous year, which means that gross stumpage earnings will amount to a little over FIM 9 billion this year. In 2000, earnings will escalate to FIM 9.4 billion again, owing mainly to a rise in the stumpage price level. It seems that total investments in private forestry are increasing their share of gross stumpage earnings this year and the next, ending up at 11 or 12 per cent.

### Net Earnings in Forestry Increased while Operating Margins Fell

The average nominal net earnings per hectare of forest land (gross stumpage income + government subsidies - variable and fixed costs of timber production excluding loan interest and forest tax) grew about six percent in 1998 from FIM 580 achieved in 1997. This increase of per hectare net earnings was mainly due to the record-high nominal stumpage earnings in Finland during 1998. Net earnings are expected to

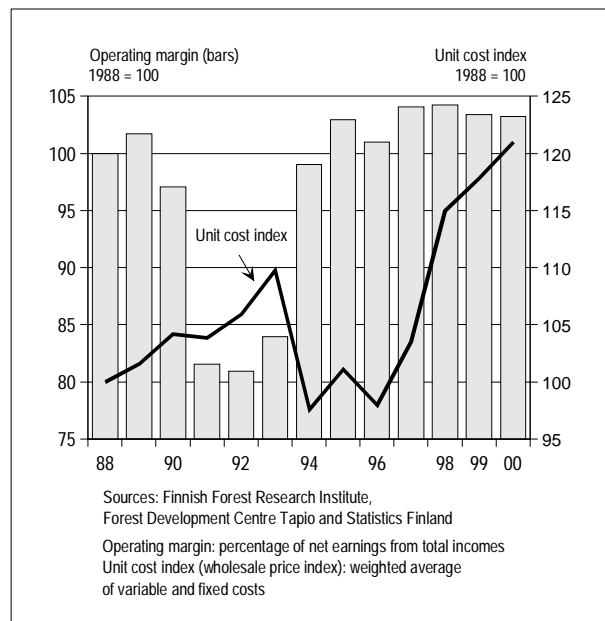


Figure 18. Private Forestry Operating Margin and Unit Cost Index between 1988 and 2000est.

fall in the current year but to grow again next year back to the 1998 level. The decrease of net earnings this year is due to the increased investment rate in forestry whereas the increase in 2000 is caused by more than proportional growth in the gross incomes with respect to the total costs.

The profitability of forestry, measured in terms of annual operating margins, is projected to remain below the 1998 level both this year and the next. The annual operating margin is calculated by deducting variable and fixed costs of forestry (with the exception of interest on loans and forest tax) from the sum of gross stumpage earnings and public subsidies. The annual operating margin measures the percentage share of net earnings from total gross earnings.

The index of real value unit cost in timber production increased both this year and the last mainly due to the increasing demand for investment inputs for forest regeneration and silvicultural improvement. Also the demand for ditching and forest road construction promoted by the expanded public sub-

**Table 12.** Changes in Real Unit Costs in Timber Production.

Type of Work	Share from the variable costs 1997–98, %	Change 1997–98, %	Forecast for the change 1998–99est., %	1999est.–2000est. %
Forest regeneration and silviculture	76	4.6	1.6	2.2
Forest improvement	11	4.0	1.5	1.6
Construction of forest roads	13	5.4	1.1	1.6

sidies grows next year. The increased total demand of inputs in forestry will increase the unit cost index this year and the next if the total supply of these inputs remains unchanged.

### Forest Regeneration and Silviculture Unit Costs Going Up

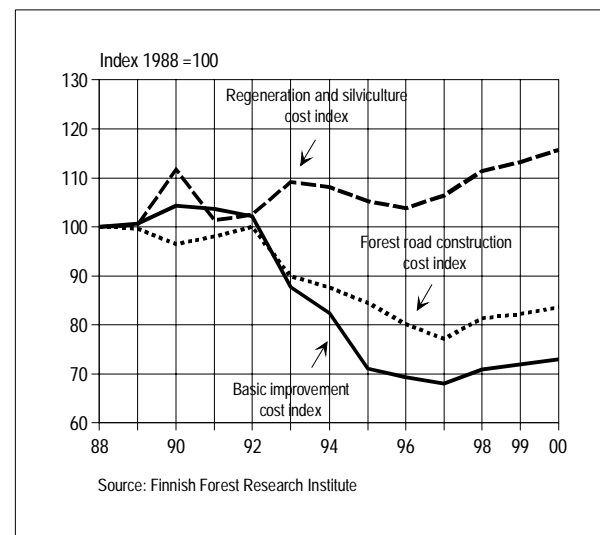
The total area of forest land regenerated in 1998 did not change from that of the previous year despite the large removals and stumpage earnings. This together with the large commercial fellings this year will increase the total hectares to be regenerated in 1999 and 2000. The silvicultural cost index, which include the unit cost categories of forest regeneration and silvicultural investments, respectively, rose by approximately five percent last year. The increased public subsidies for year 2000 proposed in the National Forest Programme, will consolidate the demand for silvicultural investments.

### Unit Costs of Forest Improvement Investments Increasing in 2000

The unit cost index of forest improvement had a downward sloping trend from the early 1990's up to last year. The trend was due to the tight competition among the contractors caused by shrinking demand for ditching, the most important work category in the unit cost index. Index is expected to grow this year

and the next due to the additional public financing for ditch cleaning and supplementary drainage which will increase the total demand for these activities.

The decrease in the unit costs of fertilization and pruning in 1998 was not visible in the unit cost index since they account together for less than one fifth of the value of the investments counted to forest improvement. The unit cost from the construction of permanent forest roads rose by over five per cent in 1998. The construction of main haulage roads as well as arterial forest roads were reduced both in number and in share of total kilometers last



**Figure 19.** Real Unit Cost Indices in Timber Production between 1988 and 2000est.

year. The construction of new roads and the improvement of the old ones are expected increase in 2000. The unit costs will grow next year without increased supply of entrepreneur services.

### **3.4 Labour Force in Forestry**

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*In 1999, employment in forestry is expected to drop by about four per cent. Unemployment figures will remain at last year's level of approximately 15 per cent. The workforce is showing a downward trend mainly in the numbers of harvesting workers and the forest owner's own labour input. In 2000, employment in forestry is expected to remain at the current year's level.*

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#### **Workforce Continues to Diminish**

In 1999, according to a labour study by Statistics Finland, the workforce employed in forestry will shrink by approximately 1000 man-years from last year and stand at about 23 000 man-years. On average, the labour input by salaried employees will remain at last year's level of 7000 man-years, whereas the labour input of entrepreneurs and their family members will drop from 7000 man-years to 6000 in 1999. Wage earners labour input in forestry will remain at the average level of 10 000 man-years, but the emphasis of employment will shift from harvesting to silviculture.

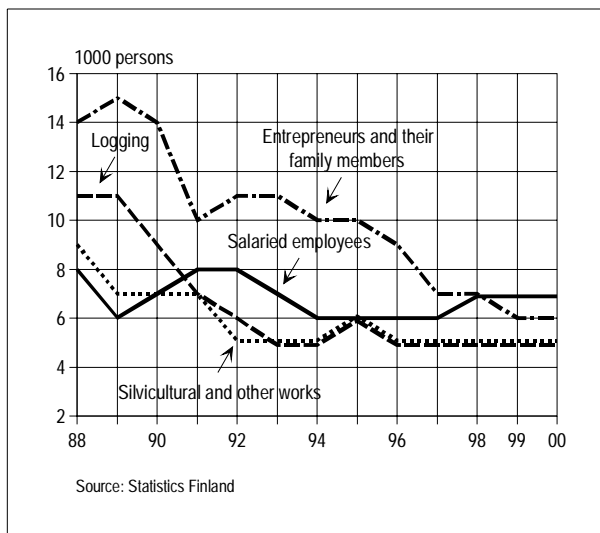
Employment in forestry continues to decline in spite of a generally improving trend in unemployment figures. The timber removals are expected to stay at last year's level in 1999 and they are not forecast to show any significant increase next year, either. However, since the productivity of timber harvesting continues to improve, employment in forestry will depend on the development of the demand for labour in silviculture and other work categories.

An upswing in Finland's national employment rate will not affect unemployment in forestry. Measured by the figures based on preliminary data provided by Statistics Finland, the latter seems to be remaining at the 1998 level of 15 per cent in the current year. The average national unemployment figures are estimated to improve by one per cent this year, i.e. drop to ten per cent, and continue their fall to nine per cent in 2000. The number of unemployed forestry workers is slightly over 4000.

#### **Silviculture Employs More People than Harvesting**

In 1999, wage earners labour input in forestry is expected to remain at the same level as last year, i.e. at approximately 10 000 man years. However, in the light of preliminary data, work input demand in harvesting will decline by ten per cent on average in 1999. Even though removal volumes will remain at last year's level, the work is becoming increasingly mechanised and more productive in consequence. In 1999, the number of harvesters will amount to 1200, which is 100 machines more than last year. The increased number of machines is probably due to the fact that compared to last year, this year has seen more timber harvests in company-owned forests, where the proportion of mechanical harvesting is higher than in non-industrial private forests. The number of forwarders has also increased a little in timber harvesting, while the use of tractors in forestry work has, correspondingly, decreased.

By way of compensation, the labour input of silvicultural and other work is likely to grow by about ten per cent in 1999, so that the total number of wage earners in forestry will remain at its former level. In 1999, for the first time, more than half (55 per cent) of the labour input by forestry wage earners will consist of silvicultural and other work, and less than half of harvesting work, most of which is now mechanised. The increased number of jobs in silviculture is probably partly due to the Tending of



**Figure 20.** *Development of Employment in Forestry between 1988 and 2000est., 1000 Man-Years.*

Young Forests campaign and the slightly increased use of wood for energy production.

Forest drainage and forest road construction are considered to belong to the field of land and water construction, but, in practice, they are forestry jobs. According to an estimate by the Association of Forest Machine Entrepreneurs, forest drainage and the construction of forest roads employ between 500 and 700 people on average, three in four of whom

are entrepreneurs. Should the amount of work in these categories be doubled, as stipulated in the National Forest Programme, they would increase employment by an average of 500 man-years.

According to preliminary data by Statistics Finland, the labour input of entrepreneurs and their family members seems to be on a downward curve from last year's 7000 man-years to 6000 in the current year. As harvesters and forwarders grow more numerous in harvesting, the work input of machine entrepreneurs is not likely to be reduced. Thus the decrease in entrepreneur input is probably due to a shrinking input from the forest owners themselves. In 1999, the increased fellings in company-owned forests may affect the situation somewhat, but there is also a distinct declining trend in the number of forest owners with professional qualifications for and ability to perform forestry work.

In 2000, attempts will be made to increase the total area of treated young stands as well as the use of wood for energy production. Should the demand for forest improvement work also grow in accordance with the objectives of the National Forest Programme, employment may increase in the field of silviculture and other work categories. Consequently, the labour input of Finland's forestry as a whole may at least remain at the current year's level in 2000.

## Price Uncertainty and Roundwood Trade

A stumpage price negotiation system to stabilise roundwood market fluctuations has been a long tradition in Finland. Negotiations between sellers and buyers have been seen necessary to secure a sufficient supply of raw wood in the market, where structural and informational asymmetry existed between highly concentrated forest industry and large number of individual non-industrial forest owners. Unlike in most European countries, private forest owners account for about 80 per cent of total domestic harvests.

In 1994 the Finnish Office of Free Competition restricted the negotiaton system of price recommendation and volume agreements. It was seen as a barrier to competition in roundwood trade. EU Comission, however, allowed for a modified price negotiation system in 1997 for 5 years. In this system, individual wood buying companies and the representatives of sellers searched a common view on the expectations as to price development.

The Finnish Office of Free Competition denied also these negotiations in autumn 1999. The Central Union of Agricultural Producers and Forest Owners appealed and the final decision on the continuity of the negotiation system will be made by the Competition Council during the autumn 1999. A negative decision could increase uncertainty, that may with high probability change the trade patterns of individual timber sellers and the domestic supply of roundwood.

### **Timber Trade and Stumpage Price Recommendations**

Target prices and detailed guidelines for the pricing of timber items were decided in the contracts of stumpage price recommendations made in the 1980's. These contracts, that covered the whole country and all timber species declared timber buyers' and sellers' joint forecasts on future development of roundwood trade in the domestic market. The contracts, normally signed during the first quarter of year, registered the price recommendations for the rest of the contract period. The recommendations were quickly adopted by the market and stumpage

prices stabilised relatively well during the years 1987–1990. The more stable market meant that timber sellers could choose the timing of trade without price risks. An average of 60 per cent of the trade of standing timber units was sold during the autumn months (September–December).

### **Competition Increases**

The Finnish Office of Commercial Competition concluded in the early 1990's that price recommendation contracts were against domestic and international legislation because they limit market competition. Roundwood market turned market driven for the years 1991 to 1993. The price contracting returned temporarily in 1994 but only in the form of loose, regional price level contracts. The release from tight rules in roundwood pricing changed the trade patterns. The annual distribution of timber trade became more even and at the same time the nominal timber prices were the lowest during the months. During years 1991–1995 only an average of 44 per cent of the trade of standing timber units was sold during the autumn months.

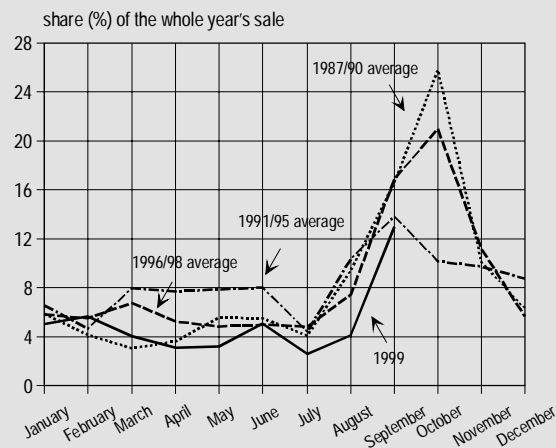


Figure 1. Monthly percentage shares of standing timber trade from private non-industrial forests.<sup>1)</sup>

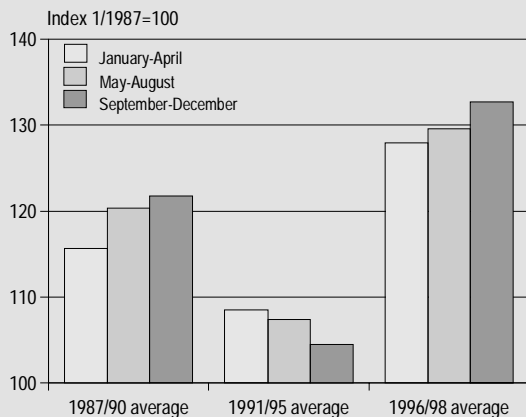


Figure 2. Four month averages of nominal stumpage price index (January–April, May–August, September–December).<sup>1)</sup>

#### **Negotiations on Roundwood Price Expectations 1997–1998**

The Officer of Commercial Competition in the EU took in 1996 a positive stand to the contracting between the individual forest industry firms and the delegations of forest owners. The Finnish Office of Commercial Competition granted a temporary permission for this type of contracting until 1998. Contracts stated only a common view on the future development of the market and gave a starting point for price negotiations in individual trade. This also meant that regional roundwood market turned more market driven. The annual distribution of timber trade regained the old pattern where the majority of timber trade took place during the autumn months.

<sup>1)</sup> The curves delineating the monthly mean values of roundwood standing sales and the nominal stumpage price index between a) 1987 and 1990, b) 1991 and 1995, c) 1996 and 1998 have been computed on the basis of data from the METINFO information system of the Forest Research Institute. METINFO is based on an information system designed by the Wood Market Committee in 1985.

#### **Structural Changes of Domestic Roundwood Market**

Fundamental changes in the competition of domestic roundwood market can be anticipated during the next coming years. The growth of roundwood import into Finland together with the general internationalisation of roundwood trade will make independent expert forecasts on domestic and international market valuable.

If the share of imported roundwood in companies' wood procurement in the spring and summer months keeps increasing, and if the domestic sales are permanently concentrated in the autumn months, the roundwood procurement of the winter, spring and summer months will continue to consist mainly of supplementary purchases. These purchases depend, e.g., on harvesting and market conditions. In a market pattern of this kind, the average prices of roundwood in the spring and summer seasons are affected by special factors, and therefore do not lend themselves to being used as a basis for the price forecast of the coming autumn.

#### **Information Needed in Domestic Roundwood Market**

If the negotiations for price expectations are given up, they should be replaced with the forecasts of some independent expert organisations. Both buyers and sellers will benefit from independently produced market forecasts, because market information is essential to the economic interests of both forestry associations and wood-buying companies. Moreover, information on changes in local competition is also needed to complement market reviews and export market forecasts.



## Funding Alternatives and Valuation of Public Land Recreation Services

Over the past few years, Finland has had to face the question as to whether the basic services in national parks and hiking areas can be maintained free of charge, or whether they are to be made chargeable. In what follows, we focus on two questions: how much do Finns appreciate these services, and what are the visitors' attitudes towards budget funding vs. user fees?

### *Public Recreation Services and their Funding*

State-owned land areas, managed by the Finnish Forest and Park Service and the Forest Research Institute (Metla), are widely used and they offer a variety of facilities. This makes these areas particularly important as providers of recreation opportunities; it is estimated that they host more than two million visits annually. The government-funded, public lands include statutory nature conservation areas, wilderness areas and national hiking areas, for example.

Hiking areas and national parks offer facilities such as nature centres, huts, shelters, campfire sites, fishing grounds, etc. The basic infrastructure of these areas, such as paths and campfire sites with firewood, enhance the recreation opportunities and reduce the erosion of nature. These basic facilities are available free of charge as part of public welfare services.

However, nowadays the Forest and Park Service is only required to provide public recreation services to the extent that the government's budget funding implies. The Committee on the recreational use of state lands in 1996 recommended that admission to

the areas and normal use of their basic facilities be kept free of charge. The Committee proposed that the Forest and Park Service would be allowed to collect voluntary payments for firewood and wilderness huts, for example. However, this is not possible subject to current legislation.

In practice, the budget funding allotted to visitor services has become insufficient with the increased number of services provided. During the next few years, it has to be decided whether the basic recreation services on public lands can still be offered free of charge in the future – which might mean cutbacks in facilities – or whether they should be subject to a charge on the beneficiary-pays principle.

### *Visitors' Attitudes to Funding Alternatives*

It is taken for granted that charges are made for additional facilities such as fishing rights, cabins and boats, but charging for admission to public areas and the use of their basic services is a complex issue. After all, state-owned land is public property which should be equally accessible to all citizens. Therefore, public approval can be regarded as an important decision-making criterion. We asked visitors to the national parks of Nuuksio and Seitsemien, as well as to the hiking areas of Evo and Teijo, about their attitudes towards the funding alternatives.

Every second respondent fully agreed that the basic services should be maintained with tax revenues and remain free of charge. Only about one in ten clearly supported the introduction of user fees to maintain the current level of facilities. This option

*Table 1. Visitors' attitudes to funding of recreational services (preliminary results).*

Propositions (% of respondents)	Fully agree	Partly agree	Cannot say	Partly disagree	Fully disagree
Basic services should be maintained with tax money and remain free of charge	50	34	5	9	2
Service facilities can be cut down, but their use should remain free of charge	15	25	13	28	19
Services should be financed with user fees to maintain current level of facilities	9	33	11	23	24

also met with the most resistance: nearly one in four fully disagreed. The beneficiary-pays principle clearly received less support than the current practice, even taking into account those who partly agreed.

The most acceptable specific fee was the charge for firewood, approved of by almost every third respondent. The least popular fees included lump-sum charges for parking, firewood and waste management. Only 15 per cent of the respondents unreservedly approved of one-off admission fees or a mandatory recreation pass entitling the holder to enter all national parks and hiking areas.

***Recreation Services Are Appreciated, and their Value Can be Measured***

Public recreation opportunities, like those based on the everyman's right, constitute non-marketed, unpriced goods. Since the benefits are not observable in terms of tangible cash flows, such unpriced services may, from the fiscal point of view, appear as a cost item only. However, following methods used in environmental economics, a monetary value can be assigned to nonmarket goods.

We used the contingent valuation method to study the value of national parks and hiking areas. The commodity was defined as admission to all such areas including the use of their basic facilities, and the payment vehicle was taxation. An additional question was used to distinguish between the real zero bids and so-called protest bids which were excluded.

*Table 2. The valuation of national parks and hiking areas (National Outdoor Recreation Assessment [LVVI], preliminary results).*

Valuation of services, FIM/person/a.	% of respondents (protest bids excluded)
zero	24
50	26
100	27
200	10
300	6
500 or more	7

About a quarter of the respondents of the population-wide survey had visited a hiking area or national park during the last 12 months. Almost 60 per cent had used these services at some point, and two-thirds thought it likely they would do so in the future.

Three out of four considered the possibility to use the areas to be worth at least FIM 50 per annum. The most common motive for willingness-to-pay was preserving cultural and natural values for future generations, or protecting undisturbed nature (60 per cent). The principal motive of the remaining 40 per cent was recreation, but most of them emphasised the value of recreation opportunities for all citizens rather than personal use. On average, the possibility to use the areas was valued at FIM 110–120 per person per annum.

***The Future Course for Development and Funding?***

According to the above visitors' opinions, the beneficiary-pays principle and admission fees lack general approval. Visitor attitudes were rather consistent with the results of a previous population-wide study. From the perspective of social sustainability (existing property rights, public approval, equality), it seems that user fees are not the primary solution to current funding problems. Due to the costs involved in administering and collecting the fees, the net revenue could be small. Also, the visitor numbers in Finland are relatively low so that admission fees are not needed to limit the use of the areas.

The beneficiary-pays principle would turn visitors into paying customers. This might have repercussions for visitors' behaviour: a paying customer may not have the same feeling of responsibility for the resource as a visitor with a sense of ownership. This viewpoint is particularly important in the case of national parks where the compatibility of recreational use with nature conservation is essential.

Based on the economic valuation results, the current levels of budget funding would seem to be easily justifiable. The possibility to use the state-owned areas for recreation was valued at more than FIM 100 per person per annum. With an adult population of almost four million, the aggregate recreation benefits are manifold to the annual budget funding of FIM 70–80 million used for the visitor services.



## 4 Roundwood Market Business Survey<sup>1</sup>

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*The representatives of the forest industry production plants who answered the survey estimated that the coming year's purchase volumes of domestic sawlogs and particularly imported wood will exceed last year's figures. In contrast, the respondents reckoned the purchase volumes of domestic pulpwood to be smaller in 2000 than in 1999.*

*Thirty-seven per cent of forest owners, which is almost the same number as last year, intend to sell timber in the coming year. Farmers intend to effect the greatest number of timber sales, whereas intentions to sell are smallest among pensioners and forest owners from Northern Finland. Over 70 per cent of forest owners intend to invest in timber production in 2000.*

*Unlike a year ago, the majority of respondents representing forest industry production plants forecast a decline in stumpage prices next year. However, as in previous years, the majority of forest owners expected the stumpage prices to increase, although not by as much as they estimated last year.*

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### **Implementation of the Survey**

The survey is designed to examine the forest industry's and forest owners' expectations of the development of business cycles in the roundwood market. The data for the survey was collected by means of postal questionnaires in August and September. These questionnaires concerning the forest industry were sent to 220 roundwood-using production plants and sawmills in Finland with an annual output of at least 5 000 m<sup>3</sup>.

Ninety-one answers were received from forest industry by the stipulated deadline, of which 75 were from the plywood industry and sawmills. The number of answers from the pulp, paper and paperboard industries was only 16 due to a lack of response from large forest industry groups' local plants. In consequence, the results mostly represent the views of the plywood industry and medium-sized sawmills on the roundwood markets. The plywood mills and sawmills which answered the questionnaire represent about 45 per cent, and the pulp and the paper and paperboard mills about 11 per cent of the total outputs of their respective sectors. In processing the results, the distribution of quantities and prices were weighted with the volume of output.

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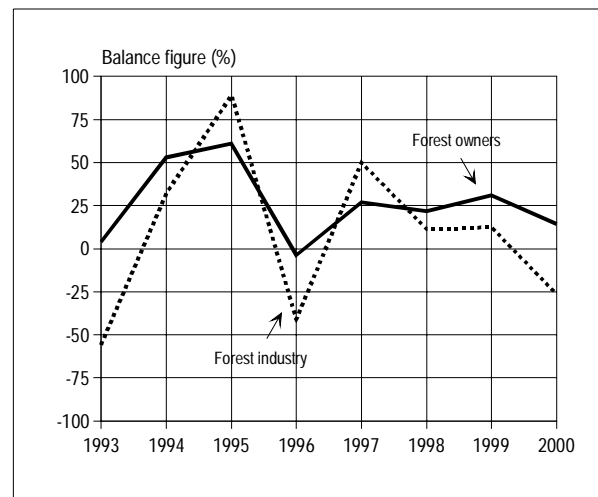
<sup>1</sup> The roundwood market business survey is an independent part of the Forest Sector Economic Outlook. Its results have not been used as a basis for the forecasts presented elsewhere in this publication. The survey is based on a postal questionnaire sent to timber market participants in August and September. The other results and forecasts in the Forest Sector Economic Outlook are founded on the demand for Finnish forest industry products and the roundwood supply situation, as well as the underlying international and domestic business cycles up until the end of October.

Due to the great number of forest owners, the survey of their expectations was based on a sample of one thousand forest holdings throughout the country which was selected by means of simple random sampling. The questionnaire was sent to the owners of the sampled holdings, and by the due date, 531 forest owners had returned the form completed in such a way that it could be accepted as data for the survey. The responses contain an unusually large number of large forest holdings and so-called family holdings. In other respects, however, the survey results correspond fairly well to the most prominent characteristics of Finland's private forest ownership. The results were computed by weighting the distributions of quantities and prices with the area of forest land.

The survey results do not indicate to what extent the purchase volumes of imported wood or the amount of silvicultural and forest improvement works, for example, are forecast to change. Instead, they show how many respondents among the forest industry representatives and private forest owners expect changes in these phenomena. However, the nature of the changes also provides a basis for estimating the changes in volumes. Moreover, when interpreting the results of the survey, the temporal quality of these phenomena must be emphasised: the conclusions reached in the roundwood market business survey are based on temporal changes in the same phenomena for which data is gathered in August and September each year.

## 4.1 Stumpage Price Expectations

The timber market participants' estimates on stumpage prices in 2000 are clearly further removed from each other than in the previous three years. In the case of the forest industry, the stumpage price expectation balance figure is  $-27$ , which means that, unlike in the previous three years, the majority of respondents from the forest industry's production



**Figure 21.** *The Forest Industry's and Forest Owners' Estimates of the Development of the Following Year's Stumpage Prices between 1992 and 1999.*

plants expect stumpage prices to fall rather than rise in the coming year (Figure 22). The expectations of a decline in stumpage prices are particularly emphatic in the case of pulpwood.

The balance figure of the forest owners' expectations of stumpage prices is  $+14$ . This means that, as in the previous years, there are more forest owners who feel inclined to expect a rise in next year's stumpage prices rather than the contrary. In comparison with last year, however, the balance of stumpage price expectations is smaller, which indicates that expectations of rises in next year's stumpage prices are more moderate this year. This is mostly due to the fact that the number of forest owners expecting an upward trend in pulpwood prices has decreased from last year.

There are differences in the stumpage price expectations between different regions and forest-owner categories. The number of forest owners from Northern Finland expecting a rise in sawlog prices is greater than average, but, on the other hand, they are less likely than average to expect a decline in pulpwood prices. Pensioners constitute the group that is the most inclined to expect an increase in sawlog prices, whereas wage and salary earners expect the

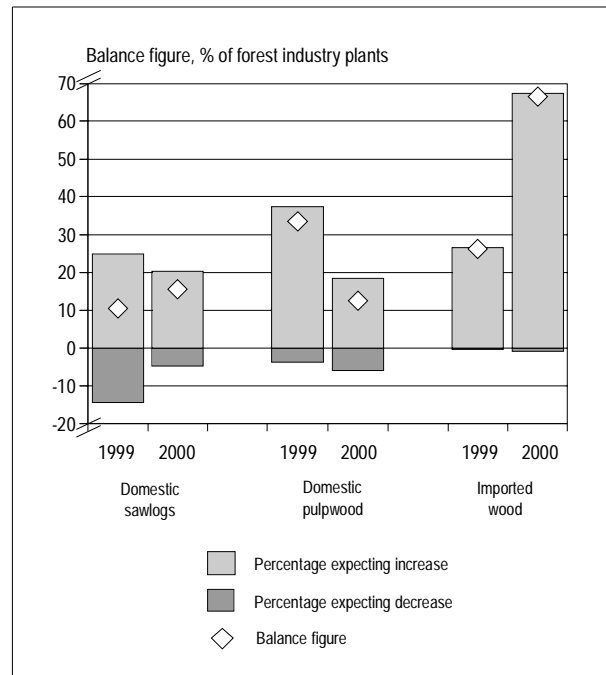
least in this respect. Pensioners also have the highest expectations for a rise in pulpwood prices. The two groups who least expect pulpwood prices to increase are the wage and salary earners and parties to inherited estates.

## 4.2 The Forest Industry's Wood Procurement

The respondents representing forest industry production plants estimated that the purchase volumes of domestic roundwood will show an upward trend compared to this year. Purchases are reckoned to increase by between two and ten per cent. The balance figure, or the difference between the number of respondents expecting sawlog purchase volumes to go up and the number of respondents expecting them to go down, is +16 (Figure 23). Last year, the corresponding balance figure was +11, which means that next year's sawlog purchases are expected to exceed last year's volumes. Respondents also reckoned that pulpwood purchase volumes will increase from the current year, but the balance figure of purchase volumes (+13) is smaller than last year. Estimated on the basis of changes in balance figures, the forest industry will, compared to the current year, buy more domestic sawlogs but less domestic pulpwood in 2000.

### Wood Imports Continue to Increase

Almost every second respondent reported that their production plant had used imported wood in the current year, and clearly over half of the respondents reported that their plant was going to use it in 2000. About one in three respondents representing production plants which use imported wood estimated that the purchase volumes of imported wood would remain at the current year's level in 2000. Less than a third of the respondents estimated that imported wood purchase volumes would increase by between



**Figure 22.** The Forest Industry's Estimates of Purchase Volumes for Domestic Sawlogs and Pulpwood as well as Imported Wood in 1999 and 2000.

two and ten per cent, whereas almost 40 per cent reckoned that their growth would amount to over ten per cent compared to the current year's volumes.

Since the balance figure of imported wood purchase volumes is markedly larger than last year, it can be expected that, in comparison with the current year, the purchases of imported wood will escalate in 2000.

As in the previous years, the majority of this year's respondents do not expect 2000 to bring many changes in the quantities of roundwood stocks at mills, by waterways, at railway sidings and roadside landings compared to this year. One tenth of the respondents estimated that the stocks will be reduced, but an equal number expects them to increase. Six per cent of the respondents thought it likely that pulpwood stocks will decrease. Last year's balance figures expressing the changes in sawlog and pulpwood stocks were somewhat smaller than this year,

so, judging by the changes in these balance figures, the forest industry's roundwood stocks are likely to grow in 2000 compared to the current year.

### 4.3 Forest Owners' Timber Sales and Investments in Timber Production

Twenty-five per cent of forest owners have sold timber at least once, and another fourteen per cent intend to sell wood by the end of the current year. Thus, well under half of the forest owners, which is considerably less than last year, have sold or intend to sell wood in 1999 (Figure 24).

In Western and Northern Finland, timber sales are occurring less frequently than on average this year. This applies also to the forest holdings owned by wage earners, pensioners, parties to inherited estates, and syndicates. In contrast, farmers are selling timber more frequently than on average also in the current year, which is partly due to the fact that their forest holdings are larger than average in size.

In the current year, site-productivity taxation and the recommendations of Forest Management Associations have played a greater role in timber sales decisions than last year. In contrast, the development of roundwood prices and the need for silvicultural works on forest holdings have had less effect on decisions to sell timber this year than last.

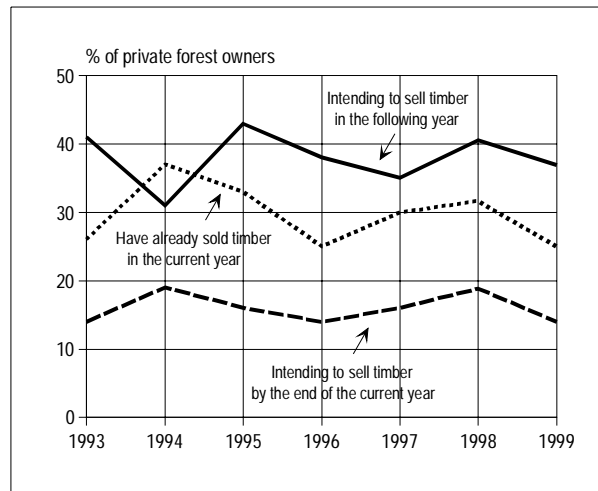
#### Timber Supply Will Decrease Slightly

In 2000, 37 per cent of forest owners intend to sell timber. A year ago the percentage of forest owners intending to sell timber in the following year was over 40. The inclination to sell is below average among forest owners from Northern Finland, parties to inherited estates, wage earners and pensioners. Farmers, however, intend to sell more timber than on

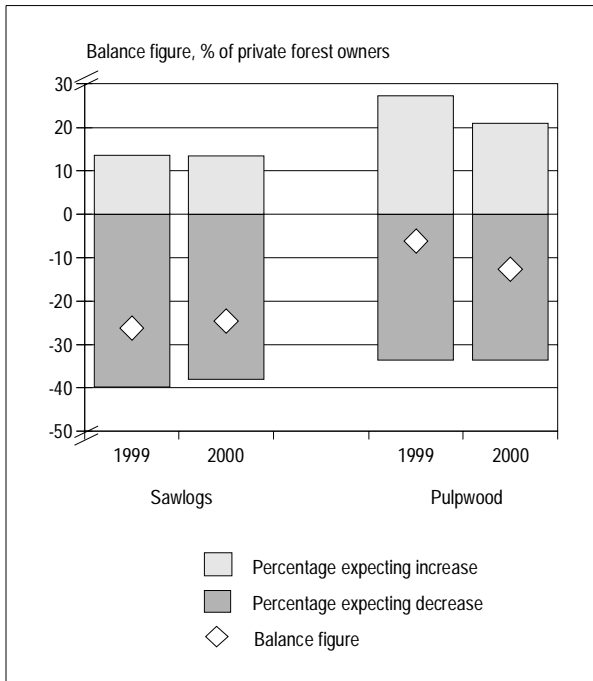
average; 60 per cent of them are planning to effect timber sales in 2000.

Forest owners who have already sold timber in the current year, or intend to sell timber next year, if not earlier, estimate that sawlog sale volumes will decrease next year in comparison with the current year (Figure 25). The balance figure, or the difference between forest owners who think sawlog sale volumes will increase and those who expect them to decrease, is  $-25$ , whereas last year's corresponding figure was  $-26$ . Judging by these figures, there will be no major changes in sawlog supply in 2000 compared to the 1999 supply. Next year, supply will be stronger than average in Western Finland, and weaker than average among wage and salary earners and farmers.

The sale volumes of pulpwood are also estimated to decrease in comparison with the current year's volumes. The balance figure is  $-13$ , whereas last year's figure was  $-6$ . On the basis of this change in the balance figure, pulpwood supply is estimated to



**Figure 23.** Proportions of Forest Owners who have already sold or intend to sell timber in the current year, or who intend to sell timber in the following year (each figure from the respective preceding year; development between 1993 and 1999).



**Figure 24.** Forest Owners' Estimates of the Following Year's Sale Volumes of Sawlogs and Pulpwood in 1999 and 2000.

shrink in 2000 compared to the current year's supply.

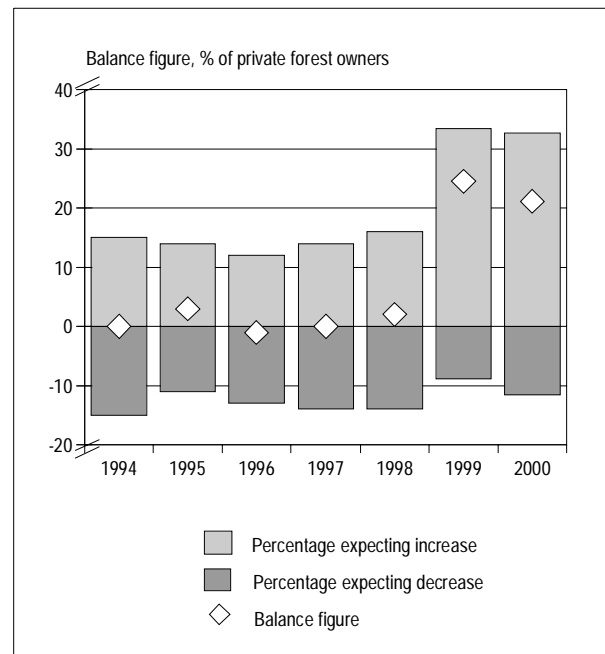
Estimates on regional variation in pulpwood sale volumes resemble the regional variation in sawlog sale volumes. In terms of owner categories, however, it is noteworthy that supply will be stronger than average among holdings owned by farmers and pensioners, and weaker than average among holdings owned by wage and salary earners in 2000.

### Investments in Timber Production Expected to Remain at the Current Year's Level

The record-high felling volumes of the previous couple of years are also reflected in the investments in timber production in private forests. As last year, an average of 60 per cent of forest owners have already carried out, or intend to carry out or com-

mission silvicultural or forest improvement works. In Northern Finland, however, only half of the forest owners have invested in timber production. In addition, such investments have been less frequent than average on inherited estates and those owned by pensioners. In contrast, about 70 per cent of forest owners in Eastern Finland and almost 80 per cent of farmers have already invested or intend to invest in timber production in 1999.

Over 70 per cent of forest owners intend to make investments in timber production in 2000. One year ago, the number of forest owners intending to invest in timber production in the following year was almost the same. Moreover, the variations between different regions and forest-owner categories also resemble last year's situation: farmers were more inclined than average to invest in timber production, whereas the inclination to do so was below average among forest owners in Northern Finland, parties to inherited estates, and pensioners.



**Figure 25.** Forest Owners' Estimates of the Following Year's Need for Forest Improvement Works between 1993 and 1999.

According to the estimates of forest owners who intend to carry out silvicultural or forest improvement works this year or the next, the difference between increase and decrease in work input volumes, in other words the balance figure, is +21 (Figure 25). One year ago the balance figure was +25, and in the preceding five-year period it ranged from -1 to +3.

Judging by the change in the balance figure, forest owners will carry out an equal amount of silvicultural and forest improvement works on average in 2000 as this year. Next year, the amount of silvicultural and forest improvement works will exceed the average level in Eastern Finland, and in the holdings owned by inherited estates and farmers, whereas in Western and Northern Finland and in holdings owned by pensioners, they will remain below average.



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# **The System of Forecasting Business Cycles in the Forest Sector (MESU) -research project**

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## **Purpose**

- To produce the Finnish Forest Sector Economic Outlook
- To develop models for forecasting Finnish forest industry exports
- To develop roundwood market forecasting models
- To produce market reviews on the Finnish forest sector
- To develop and maintain the MESU database

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