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EARNINGS OF FOREST WORKERS IN SCANDI-
NAVIA, ESPECIALLY IN FINLAND

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ESPECIALLY IN FINLAND

FOREWORD

The present work is a continuation of the survey concerning the level of earnings of forest workers in Finland, carried out by the Forest Research Institute. A preliminary report, prepared in haste for the State Council in 1962 and 1963, appeared as the first publication in the Folia Forestalia series.

The material collected in the latter part of 1963 has not been published earlier. Therefore the data on the earnings for that entire year are presented in this report. The subsamples of 1963, covering the whole country, were also used in 1966 and 1967. On one hand there are certain advantages in using the same subsamples, on the other there is one disadvantage: The youngest age group, persons between the ages of 18 and 20, is omitted. Originally the survey was to be completed by 1968, but in 1967 it was decided that material for comparison would be acquired from Sweden and Norway and that the survey would be extended to cover the level of living of Finnish forest workers. Thus the data collection was completed in 1972.

The survey of the level of living of Finnish forest workers has been published as a book, titled *Suomalainen metsätyömies* (The Finnish Forest Worker) at the end of 1972 (HEIKINHEIMO et al. 1972). It will also appear in the Folia Forestalia series, soon after the present report.

The material of the present survey is mainly drawn from the years 1963, 1966 and 1970. The newest available data have been included in all the series describing the development of

earnings; information for the year 1972 has been included when possible.

The following institutions and persons aided in the collection of the data: Forest Workers' Pension Fund (Metsäalan Työeläkekassa), the National Board of Forestry (Metsähallitus), the Forest Wage Department of the Ministry of Social Affairs and Health (Sosiaali- ja terveystieteiden ministeriön metsäpalkkaosasto), the Central Statistical Office (Tilastokeskus), the Planning Department of the Ministry of Labour (Työvoimaministeriön suunnitteluosasto), Mr. ZACHRIS TAMMINEN of Sweden, Mr. TORS-TEIN OPHEIM and Mr. ROLF SAETHER of Norway.

LAURI HEIKINHEIMO has written chapters 3 and 7, MATTI HEIKINHEIMO chapters 1 and 2, and AARNE REUNALA chapters 4, 5 and 6.

We extend our cordial and respectful thanks to all those persons who have helped us in various ways to carry out this survey, to several institutions for their financial aid, to HEIKKI LEHTONEN, MAIJA KUUSIJÄRVI, BRITA SJÖSTRAND and KAIJA WESTIN who assisted in preparing the material, to LEENA LEVANTO who translated the text and JIM CUNNINGHAM who checked it, and last but not least to the several hundreds of forest workers without whose assistance this survey would not have been possible.

Helsinki, December 1972.

Lauri Heikinheimo

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SUMMARY

The present work is a continuation of the survey concerning the level of earnings of forest workers in Finland, carried out by the Forest Research Institute in 1962 and 1963 (HEIKIN-HEIMO 1963). In addition to earnings of Finnish forest workers this publication also presents a comparison of earnings of forest workers among three Scandinavian countries: Finland, Norway, and Sweden.

This study is mainly restricted to professional forest workers, who are men between the ages of 18 and 64, employed in paid forest and log floating work for more than 100 days of the year. Professional forest workers who are employed throughout the year by the same forest employer are called permanent forest workers.

The labour input in Finnish forestry has declined during the latest twenty years from about 150 thousand to 50 thousand man-years. At the same time the seasonal variations in the paid labour force have become smaller. In this connection it is forecasted that the number of professional forest workers in 1980 will be only about 30 thousand men, when it was 75 thousand in 1966.

The average age of Finnish professional forest workers was 35 years in 1950 and two years higher in 1970.

It seems probable that Finnish forestry will have to compete for the decreasing labour force with urban occupations, secondary and tertiary industries, and to a lesser extent with agriculture.

The entrepreneur's income is 10–15 per cent of the annual income of professional forest workers in Finland. Permanent forest workers very seldom have any entrepreneur's income, because their input in paid labour usually is so great that they don't have time to work for their farm, if they have one.

The annual earnings of permanent forest workers employed by the National Board of Forestry reached the level of annual earnings of industrial workers at the beginning of the 1970's. In 1966 the annual income level of professional forest workers was about 15 per cent below that of permanent workers. This means that it will still take some time before it reaches the level of annual earnings of workers of the wood

working industries. If it continues to rise at a higher rate than that of the comparison group, the annual income of professional forest workers may exceed that of industrial workers by the middle of the 1970's.

The development of annual earnings as a function of age of permanent forest workers employed by the National Board of Forestry in 1971 is similar to that of all professional forest workers: the earnings increase till the age of 35, after which they decrease evenly and fairly steeply. The similarity of the curves describing the daily and annual earnings is explained by the fact that the number of annual working days of the permanent workers remains constant. The curve describing the annual earnings thus also depicts the development of the daily product and daily earnings in piece rate work. With increasing professional skill the daily earnings first rise, but after the age of 35 years diminishing physical fitness and the shorter working day result in a continuous decline of the earnings.

Perhaps the best way to compare annual earnings of forest workers in Scandinavian countries is to use the "food basket" method. Measured in this manner, the annual income of permanent forest workers is considerably higher than that of permanent forest workers employed by the Finnish National Board of Forestry, particularly in Sweden but also in Norway. Even in 1971 the annual earnings of Swedish forest workers were about 70 per cent and Norwegian forest workers about 40 per cent higher than those of Finnish state employed permanent workers. We must also keep in mind that the annual income of all professional forest workers in Finland is about 15 per cent below that of permanent forest workers. So when comparing incomes of professional forest workers in Finland with permanent forest workers in Sweden, we can find that Swedish wages are twice the Finnish for a year. The difference between Finland and Norway probably would be still bigger, if we could take into account the fact, that the annual earnings of Norwegian forest workers are maybe based only on about two thirds of the amount working days really done yearly.

TIIVISTELMÄ

Tutkimuksen tehtävä

- Määrittää metsä- ja uittotyömiesten vuositulo ja vuosiansio sekä päivä- ja tuntiansio.
- Kuvata metsä- ja uittotyöntekijäin reaali-ansioiden kehitystä ja verrata niitä toisten työntekijäryhmien ansioihin ja niiden kehitykseen.
- Verrata Ruotsin ja Norjan metsä- ja uittotyöntekijäin ansioita ko. maiden muiden palkansaajaryhmien ansioihin sekä suorittaa Suomen, Ruotsin ja Norjan metsätyömiesten ansiovertailu.
- Antaa tietoja metsätyövoiman määrästä työpanoksesta ja sen kausivaihteluista, yhteiskuntaryhmistä, työvuoden rakenteesta, metsätyövoiman iästä ja sen alueittaisista vaihteluista sekä esittää alkutuotannon, koko metsätalouden työvoiman ja metsätyövoiman määrän kehityksen ennusteet.
- Analysoida metsätyömiesten vuosituloon vaikuttavia tekijöitä.

Tutkimusaineisto

- Metsätyömiesten ansiotaso vuosina 1963 ja 1966 määritettiin koko Suomen ammattimaisen metsätyömieskunnan kattavista näytteistä. (Vuoden 1966 näytteet eivät peittäneet 18–20-vuotiaita.)
- Metsätyöntekijäin vuosiansiotason kehitystä vuosien 1952 ja 1971 välisenä aikana seurattiin Metsähallituksen vakinaisista metsätyömiehistä valitun näytteen avulla.
- Tilastokeskuksen vuoden 1966 kotitaloustiedustelun näyte, noin neljä tuhatta ruokakuntaa, loi pohjan metsätyöntekijäruokakuntien tulojen vertaamiselle puuteollisuuden, metalliteollisuuden, maa- ja vesirakennusteollisuuden sekä maatalouden työntekijäruokakuntien tuloihin.
- Ansiotason kehitystä tutkittiin etupäässä julkaistuja tilastoja käyttäen.
- Ruotsin ja Norjan metsätyömiehiä koskevat tiedot kerättiin työnantaja- ja työntekijäjärjestöiltä sekä eri tutkimuselimiltä. Näiden maiden vertailuaineisto saatiin virallisista tilastoista.

Metsätyömiehistä käytetään tässä tutkimuksessa seuraavia nimityksiä:

- Kaikki metsätyömiehet tarkoittaa yli 50 päivää vuodessa palkattua metsä- ja uittotyötä tekeviä 18–64-vuotiaita miehiä
- Metsätalouden kausityömiehet ovat 51–100 päivää vuodessa palkattua metsä- ja uittotyötä tekeviä 18–64-vuotiaita miehiä.
- Ammattimaiset metsätyömiehet ovat yli 100 päivää vuodessa palkattua metsä- ja uittotyötä tekeviä 18–64-vuotiaita miehiä.
- Vakinaiset metsätyömiehet ovat ammatillisia metsätyömiehiä, joilla on pysyväksi tarkoitettu työsuhte.

Palkattua metsätyötä tekevä väestö

Metsätalouden ja uiton työpanos on viimeksi kuluneen kahdenkymmenen vuoden aikana vähentynyt likimain kolmannekseen: 150 000 työvuodesta 50 000 työvuoteen. Taulukosta 3.1 ja kuvasta 3.1 näkyy, että palkatun metsätyöpanoksen kausivaihtelu on hyvää vauhtia tasoittumassa, mikä puolestaan on eräs seuraus väestön irrottautumiselle maa- ja metsätaloudesta. Taulukko 3.2 osoittaa, että metsätyöntekijöiden määrän vähetessä työt ovat samanaikaisesti keskittyneet ammattimaisille työntekijöille. Metsätyöpanoksen jatkuva nopea väheneminen johtaa kuitenkin myös ammattimaisten metsätyöntekijöiden määrän vähenemiseen. Taulukossa 3.3 ja kuvassa 3.3 on ennakoitu tämä kehitys vuoteen 1980: ammattimaisten metsätyöntekijöiden määrä lienee tuolloin enää noin 30 000, kun se vuonna 1966 oli 75 000.

Kuvasta 3.4 näkyy, että vuodesta 1950 vuoteen 1966 palkattujen metsätyömiesten suoritus on siirtynyt yhä suurempien maatalojen omistajille ja heidän perheenjäsenilleen. Tämän selitys lienee siinä, että maaseudun tilaton väestö ja aivan pienten viljelmien omistajat ovat helpoimmin päässeet siirtymään kaupunkielinkeinojen palvelukseen.

Vuonna 1966 ammattimaisilla metsätyömiehillä oli keskimäärin lähes kuusi viikkoa työttömyyttä. Täten metsätyöntekijöiden ansiot ja tulot ovatkin suuressa määrin työllisyysongelma.

Kuva 3.6 ja taulukko 3.5 osoittavat, että tuottavuuden jatkuva ja selvä nousu alkoi vasta 1960-luvulla, jolloin moottorisahat tulivat yleisiksi. Toinen pääsyy tuottavuuden nousuun oli puiden kuorinnan siirtäminen metsästä tehtaille.

Taulukosta 3.6 näkyy, että 18–64-vuotiaiden ammattimaisten metsätyöntekijöiden keski-ikä oli vuonna 1950 35 vuotta ja vuonna 1970 pari vuotta korkeampi. Ammattimaisista metsätyömiehistä vakinaisessa työsuhteessa olevat näkyvät olevan 3–4 vuotta vanhempia kuin koko ammattimainen metsätyömieskunta.

Tilastokeskuksen vuodelle 1985 laatimasta työikäisen väestön ennusteesta näkyy (kuva 3.7), että Suomen väestön ikärakenne alkaa muistuttaa elinvoimansa menettävän yhteisön sipulimaista muotoa. Vuoteen 1985 mennessä 15–29-vuotiaiden nuorten määrän lasketaan supistuvan noin 200 000:lla. Jos siirtolaisuus jatkuu entisen suuruisena, vähennys on ehkä 30 000 henkilöä suurempi. Maamme on siis siirtynyt suurten ikäluokkien, kasvavan työvoiman ja kasvavan kuluttajakunnan aikakaudesta vähenevän työvoiman ja monella tavoin pysähtyneen kasvun aikakauteen. — Kuva 3.8 osoittaa, että Etelä- ja Lounais-Suomessa metsätyövoiman ukottuminen on jo alkanut.

Kuvassa 3.9 verrataan elinkeinorakenteen muuttumista USA:ssa, Ruotsissa ja Suomessa. Kuvan perusteella voidaan ennakoida Suomessa vuonna 1980 olevan alkutuotannossa noin 10 % työvoimasta; miespuolisesta työvoimasta tämä merkitsee runsasta 100 000 miestä nykyiseen 250 000 verrattuna.

Kuvasta 3.11 näkyy, että koko metsätalouden työvoima, johto-, toimisto- ja yrittäjätöiminta mukaan luettuna oli vuonna 1953 noin 125 tuhatta, vuonna 1969 80 tuhatta ja ennuste vuodelle 1978 50 tuhatta työvuotta. Metsätalouden koulutusrakenne tulee muuttumaan, ei ainoastaan niin, että työnjohdon osuus kasvaa, vaan myös siten, että työntekijöille koneellistumisen edistyessä asetetaan suurenevat pätevyysvaatimukset. Seurauksena voi olla puute pätevistä työvoimasta samanaikaisesti kun kouluttamaton työvoima kärsii työttömyydestä.

Vuositulo- ja vuosiansiotaso

Metsätyömiesten tulonmuodostus eroaa useimpien muiden palkansaajien tulonmuodostuksesta. Toisaalta työkoneen, esimerkiksi moottorisahan, hankinta ja käyttö aiheuttaa metsätyömiehille menoja, toisaalta yli puolet amat-

timaisista metsätyömiehistä saa yrittäjätuloa omalta tai perheenjäsenensä maatilalta. Vertailukelpoisten vuositulotietojen saamiseksi metsätyömiehen vuosiansiosta on vähennettävä työn aiheuttamat menot ja niihin on lisättävä metsätyömiehen osuus maatilayrityksen tulosta.

Koska muiden työntekijäin kanssa vertailukelpoisten vuositulotietojen kerääminen metsätyömiehiltä vaatii vuosittain suoritettavia erityistutkimuksia, metsätyömiesten vuositulot on tyydytty selvittämään tällaisin tutkimuksin vuosilta 1963 ja 1966. Ammattiryhmien väliin vertailuihin ilmenee jatkuvaa tarvetta. Tämä tarve tyydytettiin vertaamalla vakinaisten metsätyömiesten vuosiansioita muiden työntekijöiden vuosiansioihin. Koska vakinaisessa työsuhteessa olevilla metsätyömiehillä on yrittäjätuloa vain poikkeustapauksissa riittää kun bruttovuosiansioista vähennetään arvioidut työn aiheuttamat kustannukset. — Toistaiseksi Suomessa vain Metsähallitukselta on saatavissa työntekijöiden ansio-, työlaji- ja työpanostiedot.

Ammattimaisten metsätyömiesten vuositulo oli vuonna 1963 noin 4300 markkaa ja vuonna 1966 noin 5800 markkaa, josta yrittäjätulon osuus kumpanakin mainittuna vuonna oli noin 700 markkaa.

Verrattaessa ammattimaisten metsätyömiesten vuosituloa eräiden toisten työntekijäryhmien vuosiansioon saatiin seuraavat suhdeluvut:

	1963	1966
Ammattimaiset metsätyömiehet, vuositulo	100	100
Puuteollisuuden työntekijät, vuosiansio	136	137
Metalliteollisuuden työntekijät, vuosiansio	156	147
Metsähallituksen vakinaiset metsätyömiehet, nettovuosiansio	120	117

Metsähallituksen vakinaiset metsätyöntekijät edustavat ammattitaitoisinta ja säännöllisimmin työskentelevää ja siten parhaiten ansaitsevaa osaa metsätyömieskunnasta. Verrattaessa Metsähallituksen vakinaisten metsätyömiesten reaalian nettovuosiansion kehitystä puu- ja metalliteollisuuden työntekijäin reaalian vuosiansion kehitykseen näkyy (kuva 4.3), että 1950-luvulla vertailuryhmien ansiot kehittyivät likimain samalla tavoin, 1960-luvulla sen sijaan metsätyöntekijöiden ansiot kasvoivat selvästi vertailuryhmien ansioita nopeammin ja saavuttivat vuonna 1970 puuteollisuuden työntekijäin vuosian-

siotason. On kuitenkin huomattava, että ammattimaisten metsätyömiesten vuositulotaso on noin 15–20 % matalampi kuin Metsähallituksen vakinaisten metsätyömiesten vuosiansiotaso, joten kestää vielä vuosia ennen kuin kaikkien ammattimaisten metsätyömiesten vuositulotaso saavuttaa puuteollisuuden työntekijäin vuosiansiotason.

Vuosituloon vaikuttavat tekijät

Kuvassa 4.5 esitetään metsätyömiesten vuosituloon vaikuttavia tekijöitä. Sen mukaisesti metsätyömiesten vuositulo muodostuu kahdesta osasta: ansiotyössä saadusta vuosiansiosta ja omalta tai perheen tilalta saadusta yrittäjätulosta. Vuosiansion suuruuteen taas vaikuttavat työpäivien lukumäärä ja päiväansion suuruus. Päiväansio puolestaan määräytyy työn yksikköpalkan ja päivätuotoksen perusteella. Päivätuotos riippuu työpäivän pituudesta, sekä metsätyömiehen suorituskyvystä ja ammattitaidosta. Työpäivän pituuden ja suorituskyvyn perustekijöinä ovat metsätyömiehen fyysiset ominaisuudet ja se taloudellinen ja sosiaalinen ympäristö, jossa metsätyömies elää.

Työpäivien lukumäärään vaikuttavat pakolliset työstä poissaolot kuten työttömyys ja huono sää. Ansiopäivien lukumäärää vähentävät myös vapaaehtoiset työstä poissaolot sekä sairaudet ja tapaturmat. Vapaaehtoisen työstä poissaolon perustekijänä voidaan pitää työn motiivointia, joka puolestaan riippuu metsätyömiehen taloudellisesta ja sosiaalisesta ympäristöstä.

On selvää, että kaavakuva on aina asian yksinkertaistamista. Kuvan 4.5 tarkoituksena ei olekaan toimia vuositulon vaihteluiden tyhjentävänä selityskaaviona, vaan kehikkona empiiriselle tarkastelulle.

Tutkittaessa faktori- ja regressioanalyysin avulla 44 muuttujan merkitystä vuositulon vaihteluiden selittäjänä todettiin, että työpäivien lukumäärä oli päivätuotosta merkittävämpi. Tämä on helppo ymmärtää, kun ottaa huomioon, että ammattimaisilla metsätyömiehillä on vuosittain useita kymmeniä arkipäiviä, jolloin he ovat pois työstä. Valtaosa tästä ajasta on työttömyyttä. Koska syy- ja seuraussuhteet vuositulon muodostumisessa ovat vaikeasti tulkittavia, niitä ei ole syytä esittää tämän tiivistelmän puitteissa. Esimerkkinä tästä vaikeaselkoisuudesta mainitakoon kuitenkin kaksi muuttujaa: metsätyömiehen koko ja hänen huollettaviensa lukumäärä. Monimuuttuja-aineiston perusteella ruumiin-

koon kasvaminen ja huollettavien lukumäärän lisääntyminen voidaan yhtä hyvin tulkita lisääntyneen vuositulon seurauksiksi kuin sen syiksi.

Kuvissa 4.6a – 4.6e esitetään vuositulon ja eräiden siihen liittyvien muuttujien jakautuminen iän mukaan. Kuvasta 4.6a näkyy, että nettopäiväansio nousee 35 ikävuoteen asti, jonka jälkeen se tasaisesti alenee, lopulta jyrkästi. Kuvissa 4.6b ja 4.6c esitetään työpäivän pituus ja suorituskyky iän funktiona. Työpäivän pituus lyhenee aluksi, pysyy sitten 55 vuoteen asti likimain vakiona ja tämän jälkeen lyhenee voimakkaasti. Päiväansion ja työpäivän pituuden muutokset ovat samansuuntaiset ainoastaan 55 ikävuodesta eteenpäin. Suorituskyvyn muutokset sen sijaan ovat ansiomuutosten kanssa samansuuntaiset 35 ikävuodesta lähtien; kummatkin ovat laskevia. Suorituskyvyn pieneneminen selittää päiväansion pienenemistä 35 ikävuodesta lähtien. Yli 55-vuotiailla metsätyömiehillä myös työpäivän pituuden lyheneminen selittää päiväansioiden voimakasta alenemistä. Päiväansioiden kohoaminen 35 ikävuoteen asti selittynee valtaosaltaan ammattitaidon kohoamisella. Työuran alkuvuosina kasvava ammattitaito nostaa päiväansioita huolimatta samanaikaisesti lyhenevästä työpäivästä ja alenevasta suorituskyvystä.

Kuvasta 4.6d huomataan, että vuositulo laskee loivasti 55 ikävuoteen, josta se sitten putoaa jyrkästi. Vuositulon kehityksessä ei ole samanlaista huippua kuin päiväansioissa. Tämä johtuu vuosittaisten työpäivien määrän kehityksestä. Kuvasta 4.6e näkyy, että työpäivien määrä laskee aluksi päiväansion noustessa (kuva 4.6a), mutta kun päiväansiot alkavat 35 vuoden paikkeilla laskea, metsätyömiehet pystyvät pitämään vuositulonsa jokseenkin muuttumattomina lisäämällä vuosittaisten työpäivien lukumäärää. 55 ikävuoden jälkeen työn aiheuttama fyysinen ja henkinen rasitus alkavat käydä yli voimien, jolloin työpäivien lukumäärä ja vuositulo putoavat lähes romahdusmaisesti.

Vakinaisten metsätyömiesten vuosiansioiden kehitys poikkeaa jonkin verran ammattimaisten metsätyömiesten vuosiansioiden kehityksestä. Kuvasta 4.7 näkyy, että Metsähallituksen vakinaisten metsätyömiesten vuosiansio kehittyy samalla tavalla kuin ammattimaisten metsätyömiesten päiväansio. Ansiot nousevat noin 35 ikävuoteen asti, minkä jälkeen ne laskevat tasaisesti ja melko jyrkästi. Tämä selittyy sillä, että vakinaisilla metsätyömiehillä työpäivien määrä pysyttelee vuosittain samalla tasolla. Vuosiansio-

kuvaajakin esittää siten päivätuotoksen ja päiväansion kehittymistä urakkatyössä; ammattitaidon lisääntyessä vuosiansiot aluksi kasvavat, mutta 35 ikävuoden jälkeen aleneva suorituskyky ja lyhenevä työpäivä aiheuttavat ansioiden jatkuvan pienenemisen.

Päiväansio

Metsäalan työehtosopimusneuvotteluissa käsitteet urakkapalkanormi, yksikköpalkka ja päiväansio ovat keskeisellä sijalla. Metsätöiden urakkapalkanormilla tarkoitetaan yksikköpalkkoja laskettaessa perustana käytettävää lukua, joka osoittaa täysi-ikäisen, työkykyisen ja metsätöihin tottuneen miehen normaalilla urakatyövauhdilla saavuttamaa keskimääräistä päiväansiota. Urakkapalkanormin avulla eri työlajien yksikköpalkat pyritään määräämään sellaisiksi, että työlajista riippumatta päiväansio muodostuu samansuuruiseksi.

Kuvassa 5.1 esitetään kaikkien, ammattimaisten ja vakinaisten metsätyömiesten nettopäiväansiot työlajeittain vuosina 1962/63 ja 1967. Moottorisahalla suoritettua hakkuutyön nettopäiväansiota on merkitty sadalla. Kuvasta näkyy, että pokasahalla suoritettua hakkuun suhteellinen ansio on selvästi pienentynyt vuodesta 1962/63 vuoteen 1967. Todennäköisin selitys lienee, että kyseinen työntekijäryhmä vanhennee nopeasti. Hevosajon korkea päiväansio selittyy suureksi osaksi siitä, että ansiosta on vähennetty vain rahassa maksetut menot, mutta ei hevosen pääomakustannuksia. Muussa metsätyössä (metsänhoito- ja metsänparannustyöt) ovat ansiot olleet likimain moottorisahalla hakkuun ansioiden suuruusluokkaa. Metsätyömiehet tekevät yleensä jonkin verran muutakin kuin metsä- ja uittotöihin luettavaa työtä, tällaisissa töissä ryhmä ”Kaikki metsätyömiehet” on saanut hakkuutyötä korkeampia päiväansioita, enemmän metsätöitä tekevät sen sijaan ovat jääneet alle hakkuutyön ansion.

Vuoden 1967 jälkeen metsätyöt ovat muuttaneet voimakkaasti. Hakkuu ilman moottorisahaa ja puutavaran ajo hevosella alkavat olla historiaa. Vuonna 1971 Metsähallituksen vakinaisten metsätyöntekijöiden nettopäiväansiot työlajeittain olivat seuraavat:

Työlaji	Netto-ansio	Suhdeluku
Hakkuu moottorisahalla	63.25	100
Metsänhoitotyö	46.50	74
Muut metsätyöt	42.45	67
Muut työt	38.55	61

Erot hakkuutyön ja muiden työlajien ansioiden välillä ovat kasvaneet vuodesta 1967. Vuonna 1971 päiväansio jäi muissa työlajeissa neljänneksen tai kolmanneksen pienemmäksi kuin hakkuutyössä. On vaikea sanoa, missä määrin päiväansioiden ero johtuu palkkaperusteista ja missä määrin työntekijöiden valikoituvuudesta eri työlajeihin.

Kuvassa 5.4 esitetään metsätalouden, teollisuuden ja maatalouden työntekijöiden reaaliset ansiotasoindeksit vuosina 1948–1971. Kuvasta näkyy, että 1950-luvulla ansiot kehittyivät samalla nopeudella, mutta metsätyöntekijäin ansiot olivat suhdanneherkimpää. 1960-luvulla metsätyöansiot kehittyivät selvästi nopeammin kuin teollisuuden ja maatalouden ansiot. Metsätyöntekijäin päiväansiot ovat parhaillaan saavuttamassa teollisuustyöntekijäin päiväansiotason.

Tuntiansio

Yleensä palkkatilastoissa pyritään tuntiansion määrittämiseen. Metsätöiden tuntiansion määrittäminen on vaikeata, koska työaika vaihtelee päivittäin vuodenajan, sään ja muiden sattuinaisten tekijöiden mukaan. Koska metsätyöt ovat valtaosaltaan urakatöitä, työnantaja ei tavallisesti puutu työajan käyttöön.

Vuonna 1963 ja tammi-helmikuussa 1967 tiedusteltiin metsätyömiestänteiltä myös päivittäisen työajan pituutta. Esitettävät nettotuntiansiot on laskettu siten, että nettopäiväansio on jaettu työpäivän pituudella.

Taulukossa 6.2 verrataan metsätyömiesten ja eräiden toisten työntekijöiden tuntiansioita vuosina 1963 ja 1967. Taulukosta näkyy, että metsätyömiesten tuntiansiot ovat kasvaneet nopeammin kuin vertailuryhmien tuntiansiot. Metsätöiden tuntiansiot ovat saavuttaneet teollisuuden tuntiansioita ja toisaalta jättäneet kauemaksi taakse valtion tie- ja ratatöiden sekä maataloustöiden tuntiansiot.

Metsätyömiesten ansiot pohjoismaissa

Metsätyöntekijöitten ansioita eri maissa vertailtaessa aiheutuu vaikeuksia siitä, että työvälineiden, ennenkaikkea moottorisahan aiheuttamista kustannuksista ei ole saatavissa tarkkoja tietoja. Vaikeuksia aiheuttaa myös se, ettei metsätyöntekijöiden omalta maatilaltaan saamia tuloja pystytä määrittämään tarkasti. Kansainvälisissä tulovertailuissa suurimmat vaikeudet ovat yhteisen mittarin löytämisessä. Valuuttakurssien huonon soveltuvuuden takia tässä tutkimukses-

sa on käytetty ns. ”ruokakorimenetelmää”, so. mitaksi on otettu keskimääräisen suomalaisen metsätyöntekijäperheen ravinnonkulutus vuoden aikana ja laskettu, kuinka monta tällaista ”ruokakoria” muiden pohjoismaiden metsätyöntekijät saavat ansiolla. Tämän menetelmän käyttöön oikeuttaa se, että ruokamenot muodostavat huomattavimman menoerän metsätyöntekijöillä.

Ruotsissa vakinaisten metsätyöntekijöiden reaaliset nettovuosiansiot nousivat vuodesta 1964 vuoteen 1971 32 %. Vuonna 1970 Ruotsin metalliteollisuuden työntekijöiden vuosiansiot olivat 11 %, paperiteollisuuden 13 % ja puuteollisuuden 3 % suuremmat kuin metsätyöntekijöiden nettovuosiansiot.

Ruotsin metsätyöntekijöiden reaaliset päivänsiot nousivat 1920-luvulta lähtien keskimäärin 2.8 % vuodessa, vuodesta 1922 vuoteen 1970 5.8-kertaisiksi. Teollisuustyöntekijöillä vastaava nousu oli 3.6-kertaiseksi. Vuonna 1971 päivänsiot Ruotsin metalliteollisuudessa olivat 2.9 % suuremmat kuin metsätyöntekijöillä, paperiteollisuudessa 0.3 % suuremmat, mutta puuteollisuudessa 7.8 % pienemmät.

Metsätyöntekijöiden tuntiansiot olivat vuonna 1970 Ruotsissa suuremmat kuin puuteollisuuden työntekijöiden tuntiansiot, samalla tasolla kuin paperiteollisuudessa, mutta vähän pienemmät kuin metalliteollisuudessa. Vuonna 1971 metsätyöntekijöiden tuntiansiot näyttävät ohittaneen mainittujen vertailuryhmien tuntiansiot.

Norjassa vakinaisten metsätyöntekijöiden reaaliset nettovuosiansiot nousivat 52 % vuodesta 1962 vuoteen 1971, vuotuinen reaaliikasvu oli 4.8 %. Norjassa ero metsätyöntekijöiden ja eri teollisuudenalojen työntekijöiden vuosiansioiden välillä on suurempi kuin Ruotsissa, teollisuustyöntekijöiden eduksi. Metalliteollisuuden työntekijöiden vuosiansiot olivat vuonna 1971 41 %, paperiteollisuuden 39 % ja puuteollisuuden 38 % suuremmat kuin metsätyöntekijöiden vuosiansiot. Metsätyöntekijöiden päivänsiot olivat vuonna 1971 osapuilleen samat kuin vertailuryhmillä ja kasvuvauhti huomioonottaen tuntuu, että metsätyöntekijöiden päivänsiot tulevat lähivuosina ohittamaan teollisuuden päivänsiot.

Verrattaessa ansioita eri pohjoismaissa käytettiin myös ”ruokakorimenetelmää”. Tulokset saatiin, että Norjassa ja etenkin Ruotsissa

näin mitatut vuosiansiot ylittivät selvästi Suomen Metsähallituksen vakinaisten metsätyömiesten vuosiansiot. Vuonna 1970 oli norjalaisen metsätyöntekijän vuosiansio 32 % ja ruotsalaisen 73 % suurempi kuin suomalaisen. Verrattaessa metsätyöntekijöiden vuosiansioita metalli- ja puuteollisuuden työntekijöiden vuosiansioihin, huomataan, että vuonna 1971 Ruotsissa metsätyöntekijöiden ansiot olivat suuremmat kuin vertailuryhmillä, Suomessa suuremmat kuin puuteollisuudessa ja Norjassa pienemmät kuin vertailuryhmillä. Verrattaessa vuosiansioiden kehitystä eri pohjoismaissa, huomataan, että kehitys on ollut nopeinta Suomessa ja hitainta Norjassa.

Tehtäessä ”ruokakorivertailu” päiväansioista kävi ilmi, että metsätyöntekijöiden päivänsiot olivat tässä suhteessa Ruotsissa 134 % suuremmat kuin Suomessa ja Norjassakin 105 % suuremmat.

Vertailu metalli- ja puuteollisuuden työntekijöiden päivänsioihin osoittaa, että kaikissa kolmessa vertailumaassa metalliteollisuuden työntekijöiden päivänsiot olivat vuonna 1971 suuremmat kuin metsätyöntekijöillä. Sen sijaan Suomessa ja Ruotsissa metsätyömiesten päivänsiot olivat mainittuna vuonna korkeammat kuin puuteollisuudessa. Norjassa puuteollisuuden työntekijöiden päivänsio oli noin 1 % korkeampi kuin metsätyöntekijöiden, mutta näyttää siltä, että muutamassa vuodessa tilanne muuttuu metsätyöntekijöiden eduksi. Metsätyöntekijöiden päivänsioiden kehitys puuteollisuuden työntekijöiden päivänsioon verrattuna on ollut vuosina 1964–1971 nopeinta Ruotsissa ja hitainta Norjassa.

Metsätyöntekijöiden tuntiansioita vertailtaessa on vaikeutena se, että metsätyöntekijöillä ei ole teollisuustyöntekijöiden tapaan kiinteätä päivittäistä työtuntimäärää. Metsätyöntekijöiden tuntiansiot on laskettu päiväansioista oletamalla päivittäiseksi työtuntien määräksi seitsemän. Verrattaessa näin saatua tuntiansiota metalli- ja puuteollisuuden työntekijöiden tuntiansioon, havaitaan, että vuonna 1971 Suomessa ja Ruotsissa suhteelliset erot olivat samat, metsätyöntekijöiden tuntiansiot olivat 11–12 % suuremmat kuin metalliteollisuuden työntekijöiden tuntiansiot ja 24 % suuremmat kuin puuteollisuuden työntekijöiden tuntiansiot. Norjassa erot olivat 5 % ja 13 %, myös metsätyöntekijöiden eduksi.

1. TERMINOLOGY AND PURPOSE OF THE SURVEY

11. Terminology

The terminology of the present survey is the same as that used in the preliminary report "Level of Earnings of Forest Workers in Finland" (HEIKINHEIMO 1963).

Earnings are the income obtained from paid work. They may be paid either in money or in kind; in the latter case the monetary value is evaluated.

Gross earnings include taxes, compensation for vacation not taken, vacation pay, various additional premiums, and compensation for the use of own equipment (e.g. power saw, horse).

Net earnings are gross earnings minus expenditures incurred in order to acquire the income.

Net earnings in felling by power saw are calculated by subtracting the following from gross earnings:

- expenditures for fuel and lubricants, spare parts, repairs and maintenance required during paid labour
- capital expenses
- travel expenses, paid in money, required for paid labour

Net earnings in hauling by horse are obtained by subtracting the following from gross earnings:

- expenses for the horse attributable to paid labour, such as feed, insurance premiums, maintenance of harness, sledge and other hauling equipment, and medical care
- travel expenses of the worker, paid in money.

Entrepreneur's income is the compensation obtained by the entrepreneur or his family for the labour performed and for the capital investment. The entrepreneur's income of the forest worker does not include the incomes of his wife or family members older than 18 years.

Income is net earnings plus entrepreneur's income.

Annual income is the income of the worker for 12 consecutive months.

Nominal income or earnings are incomes in current money values.

Real income or earnings are income or earnings transformed to correspond to the monetary value of a certain base year by using the cost of living index.

Seasonal forest workers are men between the ages of 18 and 64, employed in paid forest and log floating work for 50 to 100 days per year.

Professional forest workers are men between the ages of 18 and 64, employed in paid forest and log floating work for more than 100 days of the year.

Permanent forest workers are professional forest workers, employed throughout the year by the same forest employer, in the same manner as workers in industries.

12. Purpose of the survey

- To determine the annual income and earnings, as well as the daily and hourly earnings, of forest and log floating workers.
- To describe the development of real earnings of forest and log floating workers and to compare this with the development of real earnings of other groups of workers.
- To compare the earnings of forest and log floating workers in Sweden and Norway with the earnings of some other workers in these countries; to compare the earnings of forest and log floating workers in Finland, Sweden and Norway.
- To supply information on the number of forest workers, the labour input and its seasonal variations, the social groups, the structure of the working year, the age and regional variations of the forest labour force; to forecast the development of the number of forest workers and the total forestry labour force.
- To analyse the factors affecting the annual income of forest workers.

2. METHODS OF SURVEY

21. Principal data

The principal data in the present survey consist of the allotted subsamples 3 and 4 in the 1961 survey of the rural labour force; these subsamples will be called AO3 and AO4 (HEIKINHEIMO 1963, p. 15–17). Both are independent representative samples of men, born between 1899 and 1945, who lived in rural communes in 1961. According to their own statements, they were employed in paid forest and log floating work for more than 50 days in 1961. 190 of these men were employed in paid forest and log floating work for more than 100 days in 1963. The 1966 data consisted of those men in the subsamples AO3 and AO4 who still performed more than 50 days of paid forest work. Only those men who had performed more than 100 days of paid labour in both 1963 and 1966 were taken into account when

Table 2.1 Structural changes of the principal data from 1963 to 1966 in subsamples 3 and 4.

Taulukko 2.1 Perusnäytteen alaotosten 3 ja 4 rakenteen muuttuminen vuodesta 1963 vuoteen 1966.

	Men Miehiä	%
A. Total sample in 1963 Koko näyte vuonna 1963	190	100
B. Same sample in 1966 Näistä vuonna 1966		
- older than 65 years yli 65 vuotiaita	13	7
- dead kuolleita	1	1
- unable to work työkyvyttömiä	8	4
- adress unknown ei saatu osoitetta	7	4
C. Persons between the ages of 21 and 64 years, and able to work 21–64-vuotiaita työkykyisiä, näistä	161	85
- studying or otherwise not employed in forest work ei tee metsätöitä tai opiskelee	9	5
- abroad ulkomailla	3	2
- refused to give information kieltäytyi antamasta tietoja	5	3
- impossible to obtain reliable data luotettavia tietoja mahdoton saada	3	2
D. Data were obtained Tiedot saatiin	141	74
E. Removed from the data set, because employed for less than 51 days per year in forest and log floating work Aineistosta poistettiin, koska palkat- tua metsä- ja uittotyötä oli alle 51 päivää	24	13
F. Persons employed in forest and log floating work in 1966 Aineistoon jäi vuonna 1966, näistä	117	
- for more than 100 days yli 100 päivää metsä- ja uittotyötä tehneitä	92	
- for less than 100 days alle 100 päivää metsä- ja uittotyötä tehneitä	25	

the annual incomes were determined. The principal data for 1963 consisted of 190 men and those for 1966 of 92 men. They had been employed in forest and log floating work for more than 100 days per year (Table 2.1).

The basic sample of the rural labour force survey consisted of 28 000 men. The subsamples AO3 and AO4 represent this basic sample well with respect to the size of labour input, social groups, professional groups, and regional distribution. The basic sample was drawn in 1961. It was used in the survey on the level of earnings of forest workers in 1963, when it also represented well the basic sample in regard to the age structure. Since only those remaining in the original basic sample were used in 1966, there were no men of 18 to 20 years of age. The fact that the sample is old has certain other consequences as well, which deserve closer attention.

The sample was five years old when interviewed in 1966. Forest labour draws its new workers almost exclusively from the young population of the countryside. It is relatively rare that people in other occupations change over to forest work. Young workers are usually interested in their work, but their professional skill is not very high. This means that they do not earn as much as men who have done forest work for 5 to 15 years. Weak individuals fall out due to inability to work and changes to other occupations as the sample gets older. Inability to work is, however, a very relative concept. The necessity to make a living keeps quite a large number of men in forest work, although they are unfit for working from a medical point of view.

Since the sample of the present survey is drawn from a five year old basic sample, the results should be reviewed critically. The above discussion of the reliability of the results should show, however, that there are factors with opposite effects which cancel each other in most cases. In this case the use of an old sample probably means that the figures for the earnings are somewhat too high.

The annual earnings, power saw costs, entrepreneur's income, annual income, and the daily and hourly earnings were determined for the men of the principal data set. The daily and hourly earnings were calculated for 1963 and for January and February, 1967.

22. National Board of Forestry and the Forest Research Institute in Finland

The study of the development of the annual earnings and income of forest workers after the second World War, was mainly based on data from the forest management districts of the National Board of Forestry and the experimental areas of the Forest Research Institute. This was due to the scarcity of material and few possibilities to obtain new data. Men were considered as permanent forest workers if they were between 18 and 64 years of age and employed by the National Board of Forestry, if their personnel cards contained a minimum of 330 calendar days in one of the years 1948–1966, and if they had done mainly forest work. The corresponding number of calendar days was 280 for men employed by the Forest Research Institute (HEIKINHEIMO 1963, p. 24–26).

The data on the earnings and working time of the men employed by the National Board of Forestry were collected between 1948 and 1962, from the four forest management districts with the largest number of permanent forest workers in 1962. The index describing the development of the earnings starts from 1952, because there were no permanent forest workers before that year or only a few. The data covering the period from 1963 to 1971 were collected from a sample of 12 forest districts. These were drawn by systematic sampling of all the districts of the National Board of Forestry. They had been placed in random order and weighted by size of the total labour input of 1966.

Until 1966 the data on the men employed by the National Board of Forestry were collected from personnel cards, kept in the offices of the districts. From 1967 on, the personnel data have been stored in computer files, which include all information on the wages of each person, classified by divisions and districts of the National Board of Forestry. This wage register also includes data on labour input. After 1967 a permanent forest worker has been considered as a person whose labour input to forest work is more than 200 days annually.

The structure of the working year and the daily earnings for each type of work were calculated for 1962, 1968, and 1971. The number of working days was calculated from the number of calendar days between pay days. Coefficients, varying slightly for various kinds of work and approximating 0.75, were

Table 2.2 Structure of the working year for men employed by the Finnish National Board of Forestry and the Forest Research Institute.

Taulukko 2.2 Työvuoden rakenne Metsäntutkimuslaitoksen ja Metsähallituksen vakinaisilla metsätyömiehillä.

Type of work Työlaaji	Working days per man Työpäiviä/mies				
	Forest Research Institute Metsäntutkimuslaitos	National Board of Forestry Metsähallitus			
		1966	1962	1966	1968
Forest work, total Metsätyö yhteensä	256	250	211	226	259
- timber felling by power saw puutavaran teko moottorisahalla	127	151	114	148	186
- timber felling without power saw puutavaran teko ilman moottorisahaa	29	56	15	20	10
- timber hauling with horse puutavaran ajo hevosella	9	9	7	1	-
- other forest work muu metsätyö	91	34	75	57	63
Other paid labour Muu ansiotyö	18	14	66	40	6
Total of paid labour Ansiotyöt yhteensä	274	264	277	266	265
Men Miehiä	19	153 ¹⁾	70 ²⁾	241 ²⁾	249 ²⁾

1) The sample represents one third of the forest management districts of the National Board of Forestry.
Näyte edustaa kolmasosaa Metsähallituksen hoitoalueista.

2) The sample represents 12 forest management units.
Näyte edustaa kahentoista hoitoaluetta.

used (HEIKINHEIMO 1963, p. 24). The coefficients were based on data on permanent forest workers, collected by the Forest Research Institute, and on a study of absenteeism by HAKKARAINEN (1956 and 1957) and MÄKELÄ (1962).

The Forest technicians of the experimental areas of the Forest Research Institute interviewed the forest workers of the Institute on the use of time in 1966, entrepreneur's income, expenses caused by earnings, and income obtained from other employers.

23. The 1966 household survey

The sample of the 1966 household survey of the Central Statistical Office comprised about 4000 households. The forest worker households were picked out of this sample, using their labour input to forestry as a criterion. A person was considered a forest worker if he had been employed in paid forest and log floating work for more than 100 days of the year. 121 households were thus selected. After further checking of the material some households were omitted so that the final sample size was 95. The households discarded were those of

machine contractors and of men whose labour input to other occupations had been larger than to forestry.

The incomes of the forest worker households were compared with those of households of workers in the wood working industry, metal industry, construction industry, land and water construction industry, and in agriculture.

24. Comparison with material from Sweden and Norway

The material from Sweden and Norway was collected during visits to these countries in the spring of 1970 and later completed through correspondence. The opinions of employers and workers were taken into account, and use was made of existing survey results in both countries. The data for comparison were obtained from official statistics, and workers of the wood working industry, pulp and paper industry, metal industry, house construction industry, and agriculture served as comparison groups.

Data on the Swedish forest and log floating workers were obtained from the following offices and institutions: Föreningen Skogsbrukets Arbetsgivare (SA), Skogs- och Lantarbetsgivareföreningen (SLA), Träfackens Utredningsavdelning (TUA), Domänverket, and Kungliga Arbetsmarknadsstyrelsen (AMS). The data on the earnings of the comparison groups were collected from the Central Statistical Office of Sweden and the Statistical Yearbook published by this office.

Data on the Norwegian forest and log floating workers were supplied by the following institutions: Skogsbrukets Arbeidsgiverforening, Norsk Skog- og Landarbeiderforbund and Norske Landsbrukshøgskoles Institutt for Skogøkonomi. The data on the earnings of the comparison groups were obtained from the Central Statistical Office of Norway and its monthly and annual publications.

25. Checking of the data

Monthly questionnaires were mailed in 1963 to the men of subsamples AO3 and AO4 of the principal data set. The questions concerned their gross earnings for each kind of work, expenses caused by paid labour, daily use of time, and number of working hours. In addition, a few questions on the family or residence of the workers were included in every questionnaire.

After the questionnaires had been returned, they were checked and marked according to three classes of reliability. The copies which fell in the third class, i.e. those that were answered unsatisfactorily, were sent to the Ministry of Social Affairs and Health. The district inspectors of the Ministry completed the questionnaires through personal interviews. The men who had not returned their questionnaires after two inquiries by mail were also interviewed. Since the number of inspectors (10 inspectors and 12 assistant inspectors) was relatively large compared to that of the men in the sample, they could do their work carefully. It should be noted that only those men were interviewed whose answers were the most incomplete.

In addition to continuous checking procedures of the reliability of the earnings and labour input data, a thorough investigation was made of two random samples of men from the annual income survey. The men were interviewed, their tax books or the archives of the taxing authorities were checked, and the employer was questioned, if necessary. The figures on the daily earnings in the principal data were adjusted. This was done by means of correction percentages, obtained from the quotients of the checked and unchecked results. Only small changes had to be made for the various kinds of forest work. But in the group "other paid labour", the daily earnings rose by about 10 percent in 1963 when the wages paid in kind were given a monetary value.

The forest wage inspectors and assistant inspectors of the Ministry of Social Affairs and Health interviewed the men in the principal sample of 1966. Their annual earnings were obtained from the taxing authorities, and checked during the interview. They were also compared with the corresponding data in the registers of the Pension Security Center (Eläketurvakeskus) in order to determine if the information given by the men in the interviews tallied with the data supplied by the employers to the Workers' Pension Fund.

The earnings in the register of the Pension Security Center (ETK) and those given to the taxing authorities (VER) were not of the same months for all the men. This required the grouping of the men for comparison, according to their number of different months of paid labour. The earnings in the register of the

Table 2.3 Comparison of the taxable earnings of professional forest workers in 1966. Information supplied by the Pension Security Center (ETK), taxing authorities (VER), and data given by taxing authorities and completed by interview (MAT). "ETK=100".

Taulukko 2.3 Ammatimaisien metsätyömiesten eri lähteistä selvitettyjen pöytätyösuhteiden ansioiden vertailu vuodelta 1966. Eläketurvakeskuksen työsuhterekisteri = ETK, verotoimistotiedot = VER, haastattelulla täydennetyt verotoimistotiedot = MAT. "ETK=100".

Source of data Tietolähde	ETK	VER	MAT	Men Miehiä
Different number of months of earning Eri ansiokuukaudet				
-2	100	100	100	37
2-4	100	100	109	31
5-	100	159	159	13
Total Yhteensä	100	108	109	81

Pension Security Center were given the value of 100.

Table 2.3 shows that, for the same or nearly the same months, the earnings in the register and in the tax books were quite similar. The register earnings (ETK) grew smaller as the number of earning months differed more and more. This was due to the fact that part of the men had started work, the pension premiums of which are not registered to Pension Security Center. Another reason was that some private employers had not paid pension premiums in short-term working relations. The interview revealed that less than 10 percent of the men had earnings which were not included in their tax books. These amounted to a little over one per cent of the earnings reported to the taxing authorities.

3. PAID FOREST LABOUR FORCE IN FINLAND

31. Size of the Finnish forest labour force and its labour input

An erroneous picture is obtained of the Finnish forest labour force and forest workers if only those people are considered who have forest work and log floating as their main occupation. The census of 1970 mentions 49 000 forest workers, the census of 1960, 100 000 men and 1000 women employed in paid forest labour.

Due to very strong seasonal variations the main part of the forest work is done in the middle of the winter and the floating in early spring (HEIKINHEIMO and RISTIMÄKI 1956). As a result of this, during part of the year the number of persons employed in forest work has been over ten times larger than the number of professional forest workers employed around the year.

Another typical feature of Finnish forest work, and also of agriculture in particular is that the land owners, i.e. the entrepreneurs, and their family take part in the management of their own forests to a very large extent. A reason for this is that 65 % of the forest area of Finland is owned by private persons, mainly farmers (KUUSELA 1972, p. 16), and the average size of private forests is small, at about 31 hectares.

Because of all this, data on the number of persons employed in forestry in Finland are only available for the years 1950 and 1961. At that time special surveys on the Finnish rural male labour force were made in connection with the census. These surveys resulted in the following numbers of persons annually employed for more than 21 days in forest or log floating work, or in both.

	thousands of persons	
	1950	1961
1. Persons employed as workers or as worker- entrepreneurs	267	223
2. Persons employed as entrepreneurs in their own forests	175	152
3. Persons employed as foremen and in office work	(10)	(10)
Total	453	324

More exact information on the number of persons annually employed in forest and log floating work is obtained from the labour input figures of the current labour force survey. In this survey the sum of working days is converted to a year equal to 300 working days.

The following figures cover a period from 1950 to 1971 (Labour Report 1972).

Labour input to forest and log floating work. Thousands of working years.

1950	133	1962	112
1951	157	1963	107
1952	152	1964	112
1953	117	1965	100
1954	134	1966	91
1955	145	1967	77
1956	135	1968	77
1957	126	1969	73
1958	120	1970	68
1959	110	1971	66 1)
1960	131	1972	47 2)
1961	132		

1) Estimated figure

2) Forecast based on the first quarter of 1972

The figures clearly indicate that the need for forest and log floating labour decreased sharply, in terms of absolute numbers and with relation to the total national labour input. It should also be noted that, of the total rural male labour force, the average percentage employed in forest and log floating work for at least a part of the year was 68 % in 1950 and 52 % in 1961 (HEIKINHEIMO and RISTIMÄKI 1965).

In the following the emphasis is on the professional forest workers employed in paid forest and log floating work.

3.2. Seasonal variations

The seasonal variations in the paid labour force (workers only) are presented in Table 3.1 and Fig. 3.1. They show that the seasonal variations are leveled out. This is a result of the movement of the population, away from agriculture and forest work simultaneously. At the turn of the decades from the 1940's to the 50's there were still 125 000 men and

Table 3.1 Paid labour in forestry and log floating in 1959, 1966 and 1970. Thousands of man-months.

Taulukko 3.1 Metsätalouden ja uiton palkatun työn panos kuukausittain vuosina 1959, 1966 ja 1970. Tuhansia työkuukausia.

Year Vuosi	Month Kuukausi											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1959	134	137	111	80	63	65	46	43	57	72	84	100
1966	107	103	85	71	61	63	48	47	54	54	61	73
1970	69	70	65	56	41	43	32	36	41	51	60	60

Thousands of working months
Tuhansia työ-
kuukausia

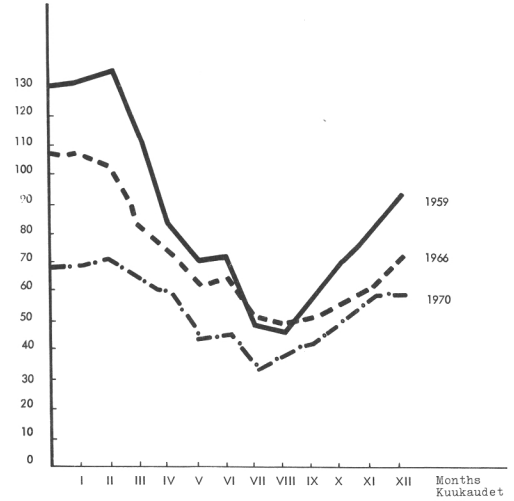


Fig. 3.1 Paid labour in forestry and log floating monthly in 1959, 1966 and 1970.

Kuva 3.1 Metsätalouden ja uiton palkatun työn panos kuukausittain vuosina 1959, 1966 ja 1970.

37 000 horses (estimated figure) in paid forest work.

In table 3.2 the number of people employed in paid forest and log floating work in 1950, 1961, and 1966 are grouped according to their labour input.

The main trends are an accelerating decrease in the total number of persons and, at the same time, a concentration of the work in the hands of professional workers.

Table 3.2 Men older than 15 years, employed in paid forest and log floating work in 1950, 1961, and 1966, and classified by labour input.

Taulukko 3.2 Metsä- ja uittotyötä ansiotyönä tehneet 15 vuotta täyttäneet miehet vuosina 1950, 1961 ja 1966 työpanosuukittain.

Labour input days per year Työpanos pv/vuosi	1950		1961		1966	
	Thousands of men Tuhansia miehiä	%	Thousands of men Tuhansia miehiä	%	Thousands of men Tuhansia miehiä	%
11-50	108	40	66	29	54	31
51-100	88	33	65	29	47	27
101-150	40	15	38	17	26	15
150-303	31	11	54	25	49	28
Total Yhteensä	267	100	223	100	176	100

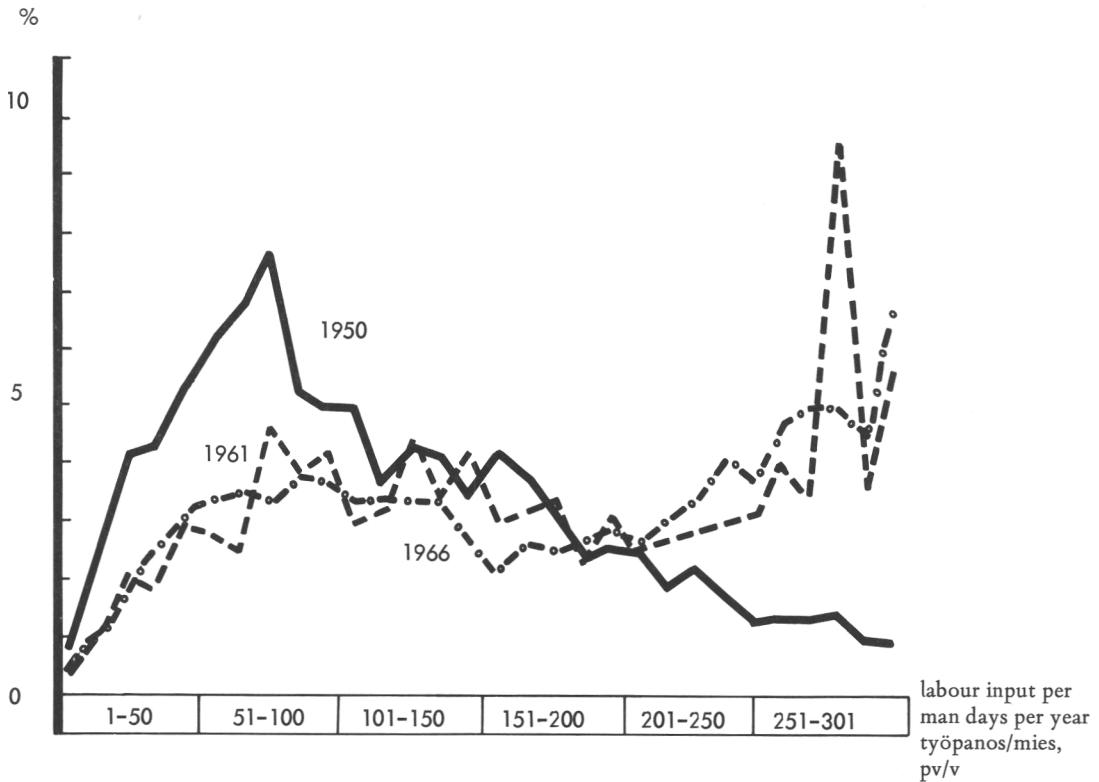


Fig. 3.2 Paid labour in forestry and log floating, by worker classes. Source: HEIKINHEIMO-RISTI-MÄKI 1965.

Kuva 3.2 Metsätalouden ja uiton ansiotyöpanos työntekijäluokittain. Lähde: HEIKINHEIMO-RISTI-MÄKI 1965.

The decrease of seasonal variation of the labour force is even more evident if we compare the distribution of paid forest labour input with the labour input groups of men in 1950, 1961, and 1966. The distribution is skew in each year, but in the opposite direction. This would indicate that the main part of the work in 1950 was done by seasonal workers, employed for less than 101 days annually, whereas the major labour input in 1961 and 1966 came from professional workers, employed for more than 100 days per year. Such sharp change occurs when a seasonal worker employed for 50 days annually, becomes a permanent worker employed for 250 days annually; four other seasonal workers then become superfluous. The effect of a more regular labour force would become still clearer if we could also take into account the fact that the daily labour input of

professional workers in on the average higher than that of seasonal workers.

It should be mentioned that this survey deals with the level of earnings of professional forest workers. This group consisted of about 70 000 persons in 1950, about 90 000 in 1961, and about 75 000 in 1966. The last figure is more uncertain than the two others. Practically all of the workers were men. Unfortunately there are no newer data available, but the percentage of seasonal workers is probably decreasing. The rapid decrease of the total forest labour force indicates that the professional labour force may also be diminishing. The rate of decrease will, however, hardly be any higher than in the period from 1961 to 1966, as shown in Table 3.2. Table 3.3 and Fig. 3.3 represent an estimated forecast of this development until 1980.

Table 3.3 Men older than 15 years, employed in paid forest and log floating work classified by labour input in 1950, 1961, 1966 with a forecast for 1980.

Taulukko 3.3 Palkattua metsätyötä tekevät yli 15-vuotiaat miehet työpanosuokittain vuosina 1950, 1961, 1966 ja ennuste vuodelle 1980.

Year Vuosi	Labour input, days/year Työpanos, päivää/vuosi		Total Yhteensä
	11-100	101-	
1950	196	71	267
1961	131	92	223
1966	101	75	176
1980	31	33	64

33. Social groups

The pronounced seasonal variations of forest work in Finland are explained by the fact that the number of people employed in agriculture has been very large; the owners of small farms and their family members have been employed by the Finnish State and other big forest employers in paid forest labour in the winter time, and in log floating in the spring.

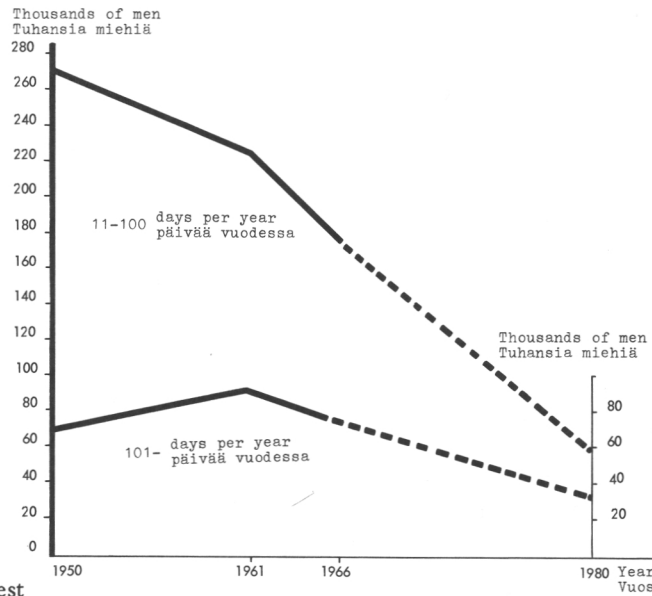


Fig. 3.3 Men older than 15 years, employed in paid forest and log floating work by labour input classes, in 1950, 1961 and 1966, with a forecast for 1980.

Kuva 3.3 Palkattua metsätyötä tekevät yli 15-vuotiaat miehet työpanosuokittain vuosina 1950, 1961 ja 1966 ja ennuste vuodelle 1980.

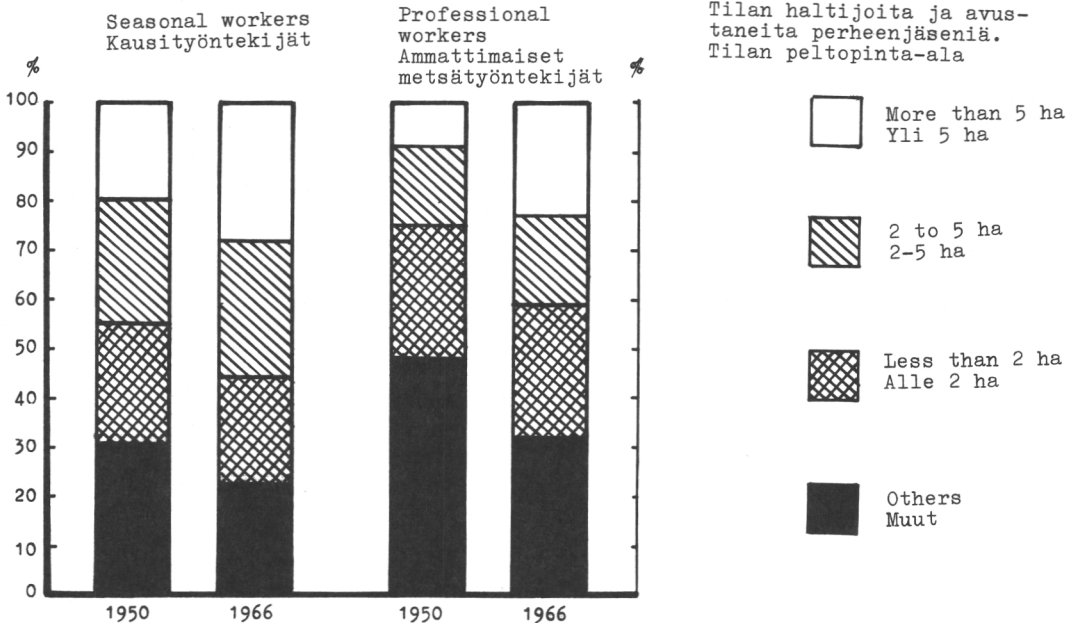


Fig. 3.4 Distribution of professional and seasonal forest and log floating workers by social groups in 1950 and 1966.

Kuva 3.4 Yhteiskuntaryhmien suhteellinen osuus metsätalouden kausityöntekijöistä ja ammattimaisista metsätyöntekijöistä vuosina 1950 ja 1966.

Working days
per year
Arkipäivää
vuodessa

□ Paid forest
work
Palkattu
metsätyö

■ Own work
Oma työ

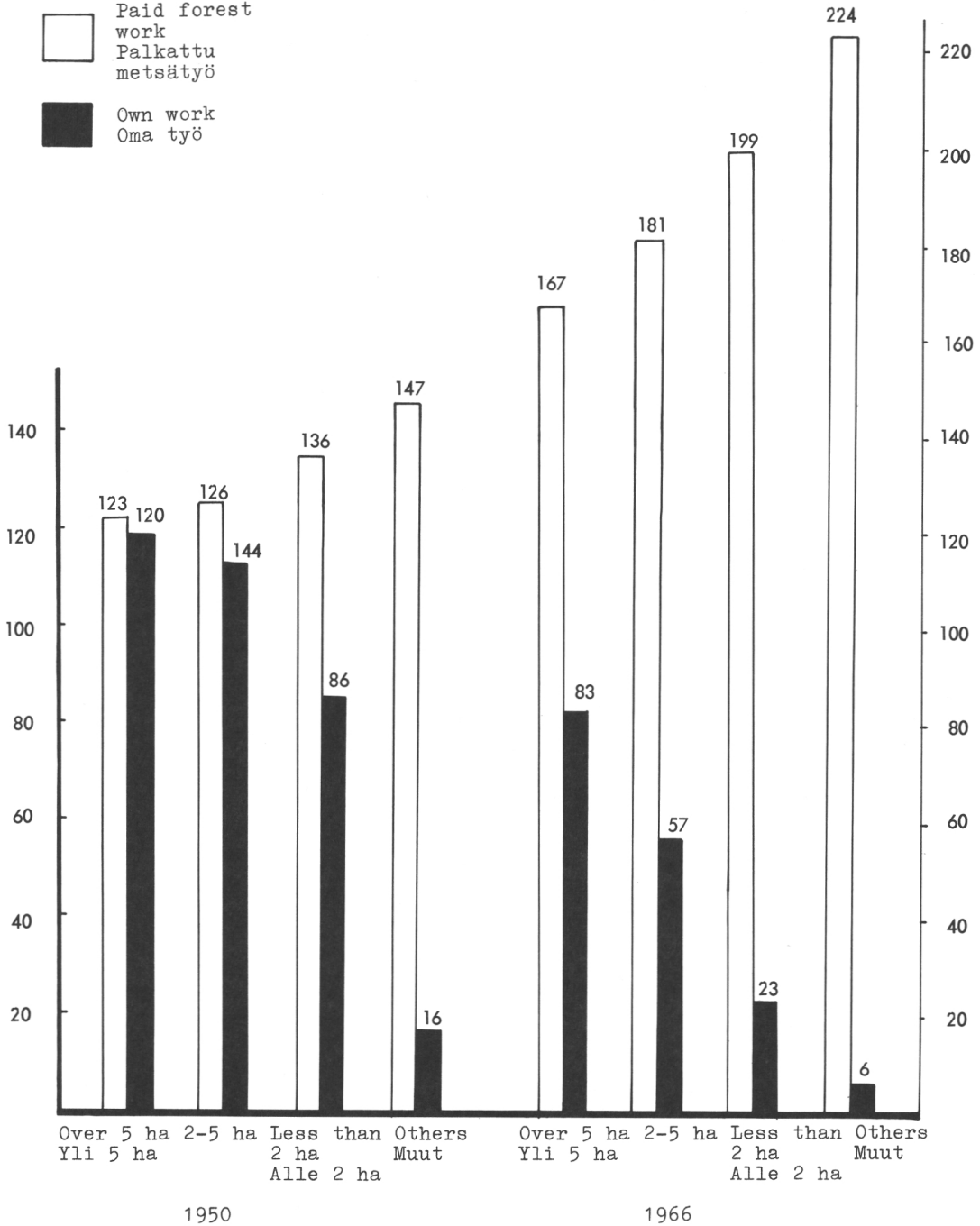


Fig. 3.5 The labour input in paid forest work and own work of professional forest workers by social groups in 1950 and 1966.

Kuva 5.4 Ammattimaisten metsätyöntekijöiden palkatun metsätyön ja oman työn panos yhteiskuntaryhmittäin vuosina 1950 ja 1966.

Table 3.4 Average structure of the working year of men between the ages of 18 and 64, employed in paid forest and log floating work for more than 50 days in 1950, 1961, and 1966, and classified by social group. Estimated from the 1961 rural labour force study and from subsamples A0₃ and A0₄ in 1966.

Taulukko 3.4 Palkattua metsä- ja uittotyötä yli 50 päivää tehneiden 18-64 vuotiaiden miesten työvuoden keskimääräinen rakenne yhteiskuntaryhmittäin vuosina 1950, 1961 ja 1966. Lähde: Maaseudun työvoiman tutkimuksen 1961 näytteistä ja alaoetoksista 3 ja 4 vuodelta 1966 laskettuja arviolukuja.

Social group Yhteiskuntaryhmä		Year Vuosi	Unpaid labour Oma työ	Paid labour Ansiotyö			Other time Muu aika	Total working days Yhteensä arki- päiviä
				Forest work Metsä- työ	Other Muu	Total Yhteen- sä		
Seasonal workers Kausityöntekijät		Paid forest and log floating work 51-100 days Palkattua metsä- ja uittotyötä 51-100 pv						
		Working days per year per person Arkipäivää/vuosi/henkilö						
Farm owners and their family members, Tilan haltijat ja heitä avusta- neet perheen- jäsenet,	Over 5	1950	174	69	34	103	24	301
	Yli 5	1961	180	75	28	103	17	301
		1966	196	72	7	79	28	303
arable land, hectares peltoa ha	2-5	1950	154	69	49	118	29	301
		1961	161	74	41	115	24	301
		1966	97	69	91	160	45	303
Others Muut	Under 2	1950	114	81	75	150	37	301
	Alle 2	1961	123	71	81	152	26	301
		1966	25	94	89	183	95	303
		1950	15	70	165	236	50	301
		1961	19	71	153	224	58	301
		1966	8	81	115	196	100	303
Professional forest workers Ammattimaiset metsätyöntekijät		Paid forest and log floating work for more than 100 days Palkattua metsä- ja uittotyötä yli 100 pv						
		Working days per year per person Arkipäivää/vuosi/henkilö						
Farm owners and their family mem- bers, Tilan haltij- jat ja heitä avustaneet perheen- jäsenet,	Over 5	1950	120	123	40	163	17	301
	Yli 5	1961	123	146	19	165	12	301
		1966	83	167	26	193	28	303
arable land, hectares peltoa ha	2-5	1950	114	126	39	165	22	301
		1961	98	148	38	186	16	301
		1966	57	181	19	200	46	303
Others Muut	Under 2	1950	86	136	55	191	24	301
	Alle 2	1961	64	170	41	211	26	301
		1966	23	199	15	214	67	303
		1950	16	147	98	245	40	301
		1961	7	182	80	262	32	301
		1966	6	224	24	248	49	303

Fig. 3.4 shows the distribution of professional forest workers by social groups in 1950 and 1966. The figures indicate that paid forest work is being done more and more by farm owners. The owners of larger farms and their family members tend to be more involved in forest work. The reason for this probably is that the landless population and the owners of very small farms move more easily into towns and cities and enter into urban industries. The larger the farm, the harder it is to leave, and the more the level of cash income is raised by seasonal work, mainly forest work.

The same trend of development is also seen in Fig. 3.5 and Table 3.4.

34. Working year and employment

A result of the social grouping of the people employed in forest work is that their working year is divided between work on the farm and paid labour. This is demonstrated in Table 3.4 and Fig. 3.5. The development is clearly oriented towards more intensive use of the labour force: some jobs done on the farm have decreased and they have been replaced by paid labour to outside employers. Attention is also focused on the time used for other things than forest work, which the persons involved usually classify as unemployment. The average period of unemployment in the group of professional forest workers was almost 6 weeks in 1966. Thus the low earnings of forest workers are to a great extent due to an unemployment problem.

35. Rise in productivity

The amount of wood felled in the Finnish forests has not increased notably during the last few decades, nor is it expected to do so in the near future. The rise in productivity affects most of all the need for a labour force and its employment. Fig. 3.6 and Table 3.5 show the main trends of this development. It should be noted that this pronounced and continuing rise in productivity started in the 1960's, when the power saw became common usage. Another reason was that the barking of timber was being done in factories.

The population employed in paid forest labour includes a total of about 10 % of boys

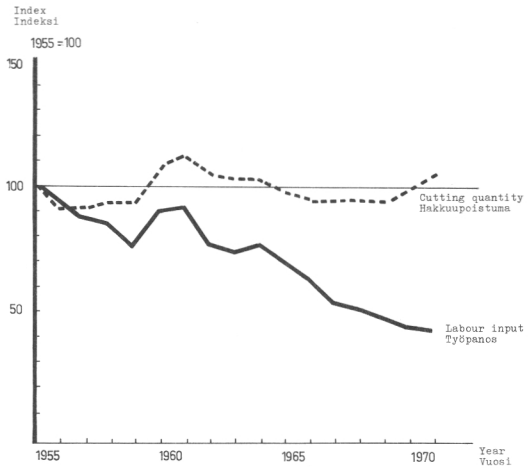


Fig. 3.6 The relative changes of cutting quantity and labour input in forestry in Finland in 1955–1970. "1955=100".

Kuva 3.6 Suomen hakkuupoistuman ja metsätalouden työpanoksen suhteelliset muutokset vuosina 1955–1970. Indekseinä "1955=100".

between the ages of 15 and 17 and men older than 65. When these are excluded from the sample, the average age of the forest worker increases by one year.

The age of the professional forest workers increased by three years from 1961 to 1966. In 1966 their average age was two years higher, in 1970 one year higher than that of all forest

Table 3.5 Relative changes in the cutting quantity and the labour input in paid forest and log floating work in 1955–1971. 1955=100.

Taulukko 3.5 Hakkuupoistuman ja palkatun metsä- ja uittotyön työpanoksen suhteelliset muutokset vuosina 1955–1971. 1955=100.

Year Vuosi	Cutting quantity Hakuuipoistuma	Labour input Työpanos
1955	100	100
56	92	93
57	92	87
58	94	83
59	94	76
60	106	90
61	112	91
62	104	77
63	102	74
64	102	77
65	98	69
66	96	63
67	96	53
68	96	52
69	100	49
70	104	47
71	100	46

Table 3.6 Men between the ages of 18 and 64, employed in paid forest and log floating work for more than 100 days in 1950, 1961, 1966 and 1970, classified by age groups.

Taulukko 3.6 Palkattua metsä- ja uittotyötä yli 100 päivää tehneet 18-64 vuotiaat miehet ikäryhmittäin vuosina 1950, 1961, 1966 ja 1970.

Age in years Ikä, vuosia	1950		1961		1966		1970	
	Thousands of men Tuhansia miehiä	%	Thousands of men Tuhansia miehiä	%	Thousands of men Tuhansia miehiä	%	Thousands of men Tuhansia miehiä	%
18-24	7	14	20	24	14	21	10	18
25-44	20	43	45	52	32	47	30	55
45-64	20	43	20	24	22	32	15	27
Total Yhteensä	47	100	85	100	68	100	55	100
Average age in years Keski-ikä, vuosia	35		35		38		37	

and log floating workers in the corresponding years.

Part of the professional forest workers are working for the same employer throughout the year. The average age of this permanent labour force is 3 to 4 years higher than that of all men employed for more than 100 days annually in forest work. This is shown in the following table.

Average age of permanent forest workers, employed by the Finnish National Board of Forestry in 1962, 1966 and 1971.

Year	Average age in years
1962	32
1966	40
1971	41 1)

1) In 1971 the National Board of Forestry employed about 1800 so-called contract workers, who had been guaranteed work for at least 200 days per year. The average age of these men was 38 years.

It appears from the above discussion of the age structure of the forest and log floating labour force that the professional workers, and

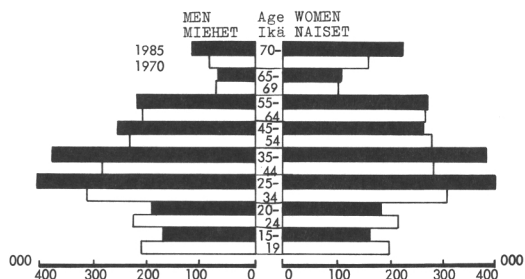


Fig. 3.7 Distribution of the population (older than 15 years) in 1970, and in 1985 as forecast by the Central Statistical Office. Source: 1972 Labour Report.

Kuva 3.7 Työkäisen (15 vuotta täyttänyt) väestön ikäjakauma vuosina 1970 ja 1985 Tilastokeskuksen ennusteen mukaan. Lähde: Työvoimakatsaus 1972.

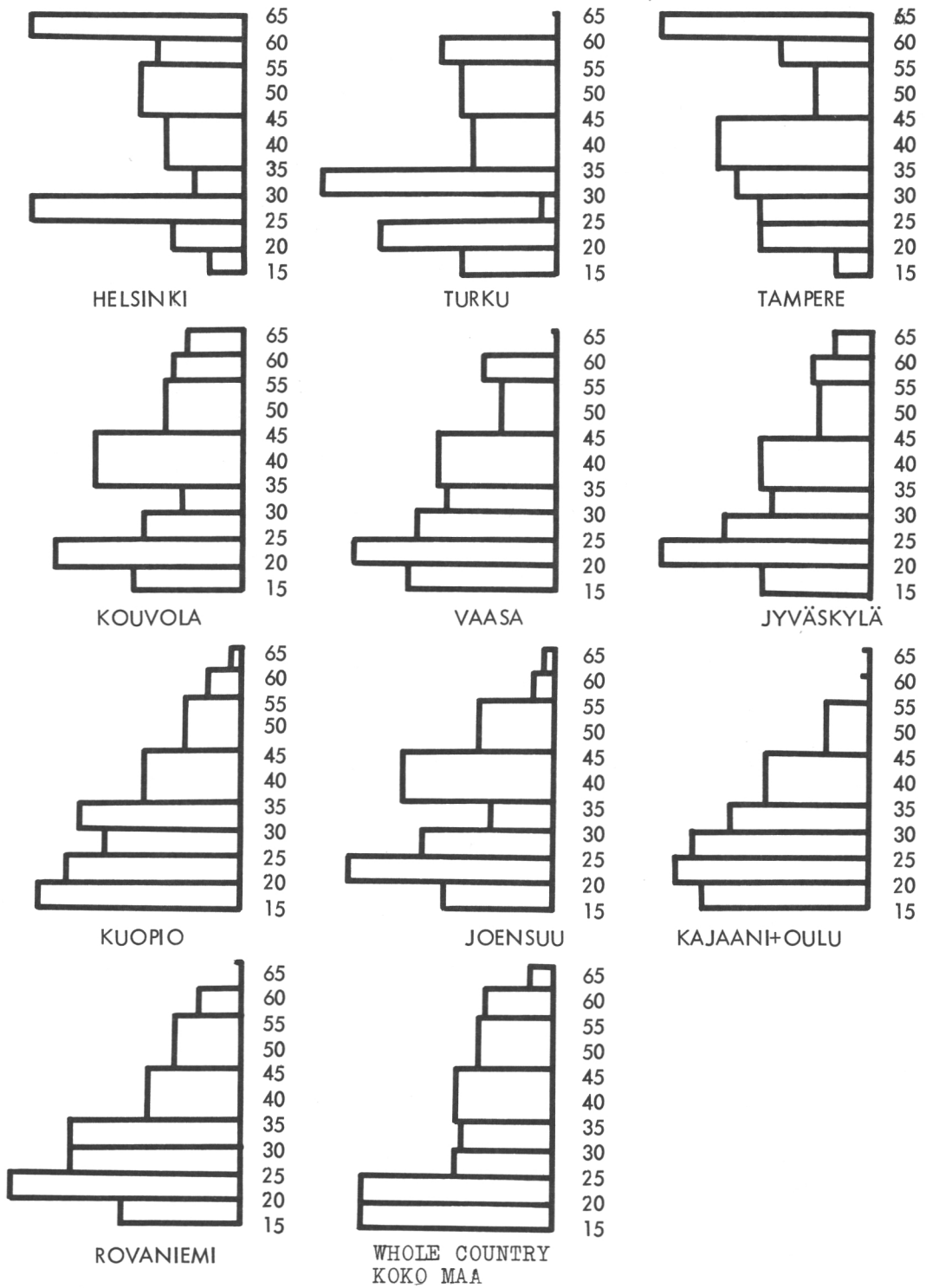


Fig. 3.8 Age structure of forest workers by work districts in 1970.
 Kuva 3.8 Metsätyöntekijöiden ikärakenne työvoimapiireittäin vuonna 1970.

more particularly the permanent forest workers, are older than the average of all forest workers. This trend has grown stronger with the years.

The present and future supply of forest labour force may be studied with the aid of the age distribution of the forest workers. The age pyramid, describing the working age of the Finnish population in 1970 (white columns) and the forecast for 1985 (dotted columns), is taken as reference.

Normally the age pyramid of a growing community is smaller at the top. It is quite evident that the Finnish age pyramid is approaching the onion-like form. This would point to a society which is losing its strength. The total number of people may still be rising for some time, since our large age groups are now in the age when they have children. After that, the population will probably start to decrease for various reasons, including emigration.

Simultaneously the number of people between the ages of 15 and 29 is forecast to diminish by about 200 000 persons by 1985. If emigration will continue at the same rate, the decrease will amount to some 230 000 people. But the number of people in the age group from 30 to 54 years will probably rise by 180 000 persons from 1970 to 1980, despite emigration.

Thus it seems fairly certain that Finland's labour force, which grew at an annual rate of 1 % in the 1960's, will not grow any more after 1985. Instead, it will diminish annually by the amount of emigrants, may be 100 000 persons, who mainly come from the youngest age groups. Thus Finland has moved away from a period of large age classes, growing labour force and rising number of consumers to a period of less growth and decreasing labour force.

Against this background it is interesting to study the regional age pyramids of Finland's 1970 forest labour force (Fig. 3.8). The age distributions of the northern, eastern and middle parts of the country are still vigorous and promise growth, whereas the pyramids for South and South-West Finland already reflect the coming difficulties. The figure is based on a small sample, but there seems to be no doubt that the forest labour force has started to get older. It will be easy to follow the trend of development since these data are collected yearly.

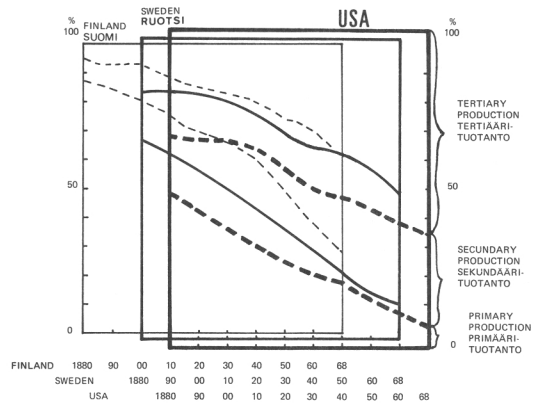


Fig. 3.9 The structure of labour by industries in Finland, Sweden and The United States in 1860–1970.

Kuva 3.9 Työvoiman elinkeinorakenne Suomessa, Ruotsissa ja Yhdysvalloissa 1860–1970.

Industrialization and urbanisation are probably the quickest, widest and most dramatic structural changes of societies. Our difficulty in realizing this stems from the fact that we live in the midst of these processes.

Fig. 3.9 compares the structural changes in the labour force of USA, Sweden, and Finland, and indicates how far these countries are apart from each other in this respect. The relative development of the labour force in different industries are drawn on top of each other so that the parts of primary production overlap. Sweden seems to be 10 years behind the USA, and Finland 30. Contrary to what is generally believed, the industrialization process is quicker when the country lies farther behind in its development. The decrease of the ratio of labour force in the primary industries is more rapid in Sweden than in the USA. In Finland it is twice as fast as in the USA. This means that these countries are approaching each other in the industrialization process.

We can use the same figure to forecast what part of the labour force will be employed in primary industries in 1980. At that time Finland may have only about 10 % of the labour force in primary production; this will mean about 100 000 people compared to the 250 000 persons at the present. So far this labour force has been the main source of forest workers and it is worthwhile to give it a close look.

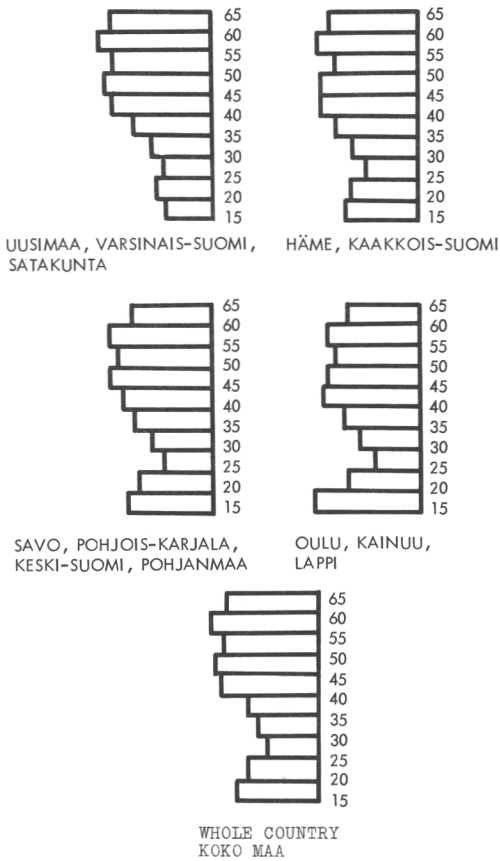


Fig. 3.10 Age structure of men in farmer families in 1969, by country districts. Source: Agricultural census 1969.

Kuva 3.10 Viljelijäperheiden miesten ikärakenne vuonna 1969 maatalouskeskuksittain. Lähde: Maatalouslaskenta 1969.

Fig. 3.10 represents the male rural labour force, aged 15 to 64 years, and working on their own farms (rural labour force survey of 1969).

It is commonly known and obvious from the age structure that the average age of our farm labour force is high. This must lead to a continuing decrease of this population in almost all fields. The possibilities to acquire a labour force for forest work from this population group will diminish rapidly.

The need for labour in forestry is quickly falling off. The productivity in forest work has grown at an annual rate of more than 5%. Fig. 3.11 shows that the total forest labour force, including management and foremen,

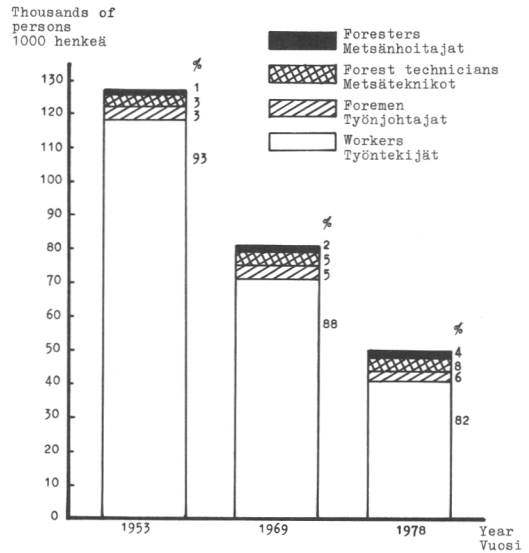


Fig. 3.11 Size and educational structure of the forest labour force in 1953, 1969 and a forecast for 1978.

Kuva 3.11 Metsätalouden työvoiman määrä ja koulutusrakenne 1953, 1969 ja ennuste vuodelle 1978.

office personnel and entrepreneurs, was about 125 000 persons in 1953, and only about 80 000 in 1969; the forecast for 1980 is 50 000 persons. The figure also demonstrates rapid growth in the number of trained workers. Perhaps the total need for labour will not decrease quite as rapidly in the 1970's as shown here, due to forest improvement programs, among other things.

It seems certain, however, that the vocational training structure will change greatly. The relative number of foremen will increase, higher qualification demands will be set for the workers, and the mechanization process will grow. The result may be a lack of competent labour and unemployment for untrained workers. This will be a common phenomenon in industrializing countries.

Finnish forestry will have to compete for the labour force with urban occupations, industry and service occupations, and to a lesser extent with agriculture.

Earnings will play an important part in this competition. This will be discussed in the following chapter.

4. ANNUAL INCOME AND EARNINGS OF FOREST LABOUR IN FINLAND

41. Measuring the annual income

The annual income of forest workers is slightly different from that of other wage earners, such as industrial workers. There are two reasons for this. First, the group of forest workers is heterogeneous, comprising permanent workers employed throughout the year in forest work, small farmers doing forest work only occasionally or during part of the year, and various other types of workers. About two thirds of the professional forest workers had income in 1966 from their farms or from the farm owned by their parents. Second, forest work is mainly done by piece rate, and wages are paid for the work and not for the time spent in doing it. In addition to this, the forest workers pay for their equipment and travel expenses; these must be subtracted from the earnings before a comparison can be made with the income of industrial workers.

The annual income of forest workers was determined in two comparable surveys. The first one was carried out from 1962 to 1963. Data on the monthly income and earnings were collected by questionnaires sent to the workers. In the second survey, made in 1966, the workers were interviewed about their annual income and earnings. No other comparable data are available. The annual earnings of permanent forest workers are easier to compare with those of other wage-earner groups, since these men receive only exceptionally an entrepreneur's income. The annual income of permanent forest workers is obtained by subtracting the estimated expenses incurred in order to acquire the income from the gross annual earnings.

The 1966 household survey also investigated the income and consumption of the forest worker households. It is uncertain whether this material can be compared with the information on other occupational groups, since it is not accurately known what part of the forest workers the sample represents. Another fact to be kept in mind is that the survey concerned the income and consumption of all members of the forest worker family and not only the head of the family.

So far no method has been developed which would allow to follow the annual earnings of forest workers on a regular basis. Structural

changes in the forest labour force and difficulties in obtaining the necessary data, mean that expensive annual interview would be the only way to collect comparable data. Since such regular surveys are not feasible, comparisons of annual earnings have to be based on the earnings of permanent forest workers employed by the Finnish State. The expenses for equipment of these men are fairly easy to estimate.

42. Surveys of the income of forest workers

The Economics Department of the Forest Research Institute surveyed the earnings and income of forest workers in 1962–1963 and in 1966. Particular attention was paid to the estimation of the annual income, in order to compare it to that of other wage-earning groups. The results of the survey 1962–1963 are published in the *Folia Forestalia* series (HEIKINHEIMO 1963), the results of 1966 and part of the results of 1963 have not been published earlier. The samples comprised professional forest workers who had been employed for more than 100 days per year in paid forest and log floating work. An interview method was used, including questions on the number of working days per year, annual earnings, expenses for power saw and horse, travel expenses, and the entrepreneur's income from the farm or forest owned by the worker.

An entrepreneur's income included also that earned by the family member assisting him. Farm income is derived from the sale of farm products, the monetary value of producer prices of the products grown on the farm and consumed by the farmer family, and the financial support given by the State. It was calculated by subtracting from these components the expenses paid in kind or money and the interest on debts. This income was divided among the family members. The share of each 18 to 64 year old member was obtained by multiplying the number of working days per year on the farm by the average daily earnings of a farm worker. The remaining part was divided between the farmer and his wife, in relation to their working days. For this purpose the working days of the wife were converted into man-days by means of the coefficient 0.8.

The operating costs and capital costs of the power saw were also investigated. Data on the

operating costs were collected monthly and capital costs were studied by separate questionnaires. 322 men using a power saw completed this questionnaire in 1963, and 77 men in January and February 1967. The average age of a power saw was 2.9 years in 1963 and 3.5 years in 1967. The difference between the purchase price and the scrap value was the amortized capital value. The scrap value was 69 Fmks in 1963 and 100 Fmks in 1967. The interest used in calculations was 8 %. The daily operating costs of a power saw were:

Operating costs, Fmks	1963 Jan., Feb., 1967	
Fuel and oil	1.23	1.83
Spare parts	0.66	1.15
Maintenance and repair	0.14	0.20
Total	2.03	3.17
Capital costs, Fmks	2.10	1.58
Total, Fmks	4.13	4.75

The operating costs only include expenses paid in money. The capital costs slightly decreased from 1963 to 1966 due to longer life and lower purchase price. The average purchase price was 789 Fmks in 1963 and 742 Fmks in

1967. Machinery costs amounted to 20 % of the daily earnings in 1963 and to 16 % in 1967.

Expenses for the horse only included the monetary value of feed, harness, etc. No estimates were made on the value of feed grown on the worker's farm or of the capital costs, since the data were unreliable. The average daily expenses for the horse were 4.00 Fmks in 1962 and 1963 and 5.90 Fmks in 1967.

Travel expenses only include the money paid for bus tickets etc., but not for food and lodgings. They averaged 0.67 Fmks per working day in 1967.

Table 4.1 shows the annual income and earnings of professional forest workers in 1963 and 1966.

It proves that the share of the entrepreneur's income has decreased markedly. The distribution of the annual income is presented in Fig. 4.1 The difference between the extreme values is more than 10 000 Fmks. The distribution is skewed, with a considerable number of professional forest workers falling in the class of very low earnings. More than one third of them earned less than 4 500 Fmks in 1966.

The annual income of forest workers also varies regionally as can be seen in the following figures for 1963:

Table 4.1 Level of annual income and annual earnings of professional forest workers in 1963 and 1966.
Source: Tables 1 and 2 of the Appendix.

Taulukko 4.1 Ammattimaisten metsätyömiesten vuosiansio- ja vuositulotaso vuosina 1963 ja 1966.
Lähde: Liitetaulukko 1 ja 2.

Year Vuosi	Gross earnings Brutto-ansio	Capital costs of power saw Moottorisahan pääomakustannus	Other work expenses Muut työn aiheuttamat kustannukset	Net earnings Netto-ansio	Entrepreneur's income Yrittäjätulo	Annual income Vuositulo	Number of men sampled Näytteesä miehiä
	1	2	3	4	5	6=4+5	7
	Fmk/man			mk/mies			
1963	4018	137	293	3588	719	4307	190
1966	5748	144	525	5079	695	5774	92

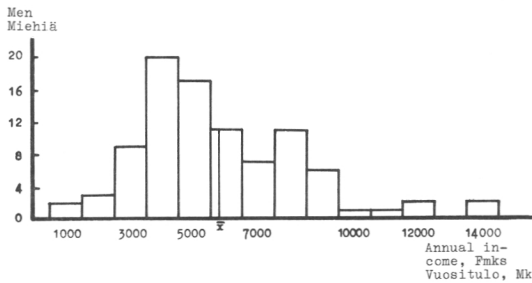


Fig. 4.1 Distribution of professional forest workers according to annual income in 1966. Source: Table 3 in the Appendix.

Kuva 4.1 Ammattimaisten mestätyömiesten jakautuminen vuonna 1966 saadun vuositulon mukaan. Lähde: liitetaulukko 3.

	Annual income, Fmks
South Finland, South and Middle Ostrobothnia	4 590
Middle and East Finland	3 800
North Finland	4 530

The annual income was about 750 Fmks lower in Middle and East Finland than in South and North Finland. There are two reasons for this. First, piecework rate in forest work is higher in the northern parts of the country. East and North Finland suffer more from unemployment than South Finland, where forest workers have more alternative jobs to choose from.

Table 4.2 shows the time structure of the working year of forest workers. More than two thirds of the year were earning days. Absenteeism amounted to an average of seven or eight weeks, or about one seventh of the working year. The remaining days were spent doing unpaid labour. It seems that the share of paid labour has grown from 1963 to 1966 while that of unpaid labour has decreased.

The distribution of earning days is presented in Fig. 4.2. Most professional forest workers had between 100 and 200 earning days in 1963. In 1966 there was another peak corresponding to

Table 4.2 Average structure of the working year of professional forest workers in 1963 and 1966. Source: Tables 5 and 6 in the Appendix.

Taulukko 4.2 Ammattimaisten metsätyömiesten työvuoden keskimääräinen rakenne vuosina 1963 ja 1966. Lähde: Liitetaulukot 5 ja 6.

	1963		1966	
	Days Päiviä	%	Days Päiviä	%
Earning days in forest and log floating work Ansiotyöpäiviä metsä- ja uitto-työssä	179	59	197	65
Earning days in other work Ansiotyöpäiviä muussa työssä	23	7	21	7
Total of earning days Ansiotyöpäiviä yhteensä	202	66	218	72
Unpaid work Oman työn päiviä	60	20	37	12
Total of working days Työpäiviä yhteensä	262	86	255	84
Days absent from work Työstä poissaolopäiviä	42	14	48	16
Total of weekdays Arkipäiviä yhteensä	304	100	303	100

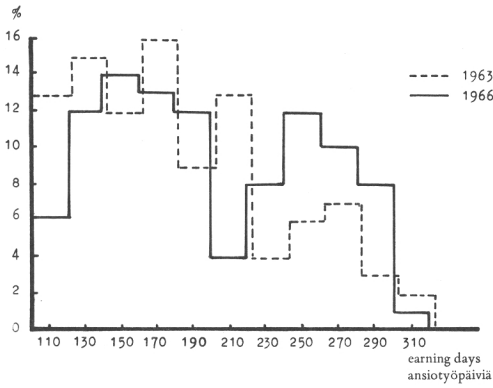


Fig. 4.2 Distribution of professional forest workers according to number of earning days in forest and log floating work in 1963 and 1966. Source: Tables 7 and 8 in the Appendix. Kuva 4.2 Ammattimaisten mestätyömiesten jakautuma metsä- ja uittotyössä tehtyjen ansiotyöpäivien lukumäärän mukaan vuosina 1963 ja 1966. Lähde: liitetaulukot 7 ja 8.

an average work input of 200 to 300 days. This reflects an increase in the number of permanent workers.

Table 4.3 shows the number of days that forest workers were absent from work in 1963

and 1966. Unemployment and illness were the main reasons. Absenteeism due to other reasons decreased during the same period. However, errors may have been committed here, due to the fact that the men were asked at the beginning of 1967 to recall their time use in 1966. Monthly questionnaires provided estimates on the use of time in 1963.

The annual income level of professional forest workers was compared with that of other wage-earner groups. For this purpose the annual earnings of industrial workers were calculated by multiplying their average hourly earnings by the number of annual working hours; 9.8 % was added to this figure to make up for salaried vacations, holidays, and sick leave. (HEIKINHEIMO 1963, p. 31). The permanent forest workers employed by the National Board of Forestry and by the Forest Research Institute were also included for comparison. Data as detailed as possible were collected on the annual earnings and income of these men. The annual income of the workers of the Forest Research Institute was determined in the same manner as that of the professional forest workers in the principal sample. Corresponding data on the men employed by the National Board of Forestry were obtained from their personnel cards.

Table 4.4 presents the results of the

Table 4.3 Absenteeism of professional forest workers in 1963 and 1966. Source: Tables 11 and 12 in the Appendix.

Taulukko 4.3 Ammattimaisten metsätyömiesten työstä poissaolopäivien lukumäärä vuosina 1963 ja 1966. Lähde: Liitetaulukot 11 ja 12.

Year Vuosi	Days/Päiviä								
	Travel to work Työmat- kat	School, studies, milita- ry ser- vice Koulu Opinnot Asevel- vollis- uus	Unemploy- ment Työttö- myys	Bad weather Huonon sään aiheut- tam poissa- olot	Vacation Loma	Illness Sairaus	Acci- dents Tapatur- man ai- heutta- mat pois- saolot	Other reasons Muut syyt	Total Yhteen- sä
	1	2	3	4	5	6	7	8	9
1963	2	..	16	6	6	6	2	4	42
1966	1	..	33	1	2	9	1	1	48

Table 4.4 Annual income and earnings of forest workers as compared to annual earnings of male industrial workers in 1963 and 1966.

Taulukko 4.4 Metsätyömiesten vuositulot ja -ansiot verrattuina teollisuuden miespuolisten työntekijöiden vuosiansioihin vuosina 1963 ja 1966.

Worker group Työntekijäryhmä	1963		1966	
	Fmks mk	Index Suhde- luku	Fmks mk	Index Suhde- luku
Workers in metal industry, annual earnings Metalliteollisuuden työn- tekijät, vuosiansio	6512	156	8724	147
Workers in wood working industry, annual earnings Puuteollisuuden työntekijät, vuosiansio	5668	136	8118	137
Permanent forest workers Vakinaiset metsätyömiehet - National Board of Forestry, net annual earnings Metsähallitus, vuosiansio, netto	4984	120	6935	117
- Forest Research Institute, annual income Metsäntutkimuslaitos, vuositulo	5340	128	5458	92
Professional forest workers, annual income Ammattimaiset metsätyömiehet, vuositulo	4165	100	5924	100

comparison. The annual income of professional forest workers includes travel expenses, since they could not be subtracted from the annual earnings of the comparison groups. The relations of annual earnings and income were about the same in 1963 and 1966, the only exception was the group of permanent fellers working for the Forest Research Institute, whose wages seem to have risen very slowly. The small size of the sample and increasing age of the men may, however, explain this result. A relative decrease occurred in the annual earnings of the metal industry workers. The annual earnings of permanent forest workers were about one fifth higher, and those of industrial workers 40 to 50 per cent higher than the annual earnings of professional forest workers. These differences are partly due to the regional distribution of the groups. Most men employed by the National Board of Forestry work in North Finland, and most professional workers in Middle Finland.

The piecework rate is higher in the north. The major part of industrial workers live in South Finland, where the cost of living is higher. Their higher annual income is explained by two facts: their average number of earning days was 254 in 1966 compared to 218 for professional forest workers; their daily earnings were 10 to 19 per cent higher than those of professional forest workers.

43. Permanent forest workers employed by the Finnish National Board of Forestry from 1952 to 1971

Data on earnings for one or two years only are not very useful, they do not illustrate the changes in the development of earnings. Unfortunately there are no other data available on the earnings of professional forest workers but these from the 1963 and 1966 surveys, presented above. Thus studies on the develop-

ment of annual earnings, concerning longer periods of time, have to be based on data on permanent forest workers of the National Board of Forestry. Professionally these men represent the best and most regular workers of the forest labour force, which also means that their earnings are the highest.

Fig. 4.3 shows the development of the net earnings of permanent forest workers, employed by the National Board of Forestry from 1952 to 1971. The material for the years 1952 to 1962 is drawn from a survey by HEIKINHEIMO (1963, p. 24–26, 47), based on the wage register of the National Board of Forestry and comprising forest workers of four districts. The wage register also provided data for the years 1963 to 1968 and for 1971, but the number of districts for this period is 12. Due

to a reorganisation of data processing systems at the National Board of Forestry, the earnings of the years 1969 and 1970 had to be estimated. They were compared to the earnings of workers in the wood working and metal industries, calculated for 1963 and 1966. The annual income was obtained by multiplying the average hourly earnings by the number of annual working hours, and adding 9 % to cover salaried vacations, holidays, and sick leave. Data on the hourly earnings are collected by the Wage Statistics Department, and the number of working hours by the Industry Statistics Department of the Central Statistical Office. Fig. 4.3 presents the converted real earnings at the prices of 1969. The earnings of all comparison groups developed approximately in the same manner during the 1950's but in the 1960's

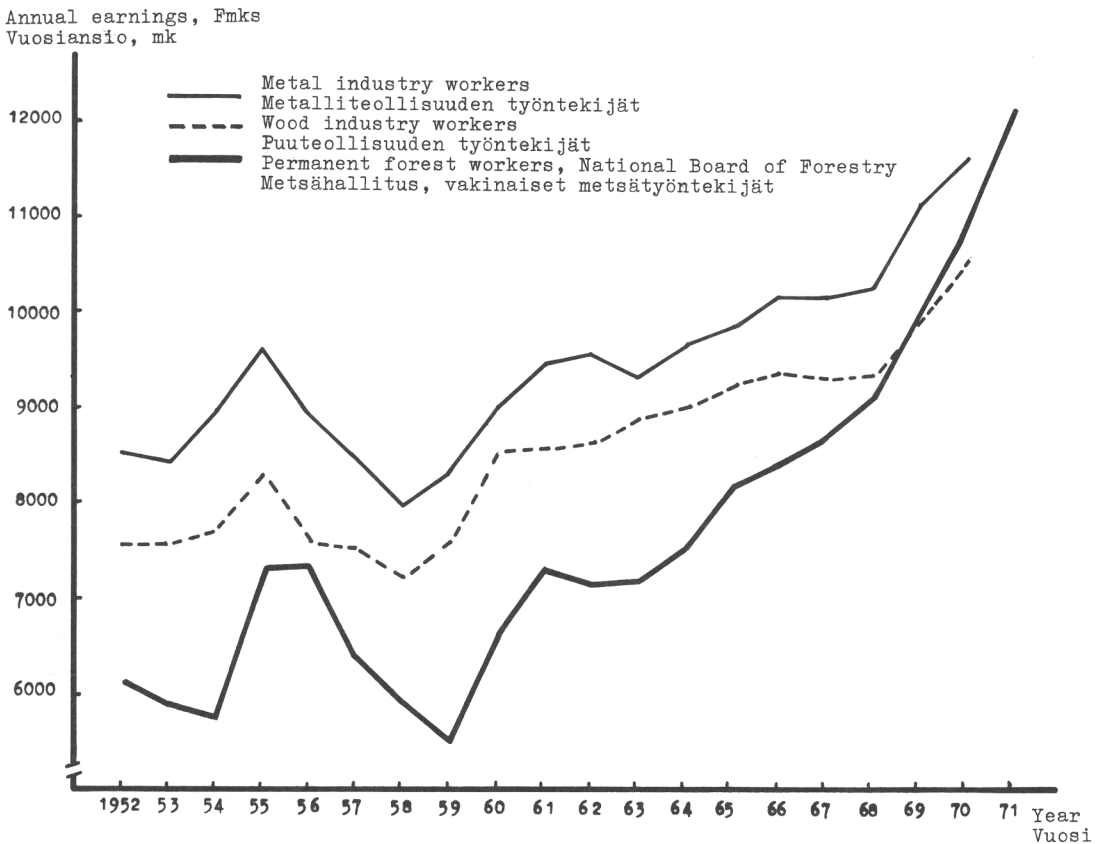


Fig. 4.3 Development of real net annual earnings of permanent forest workers employed by the National Board of Forestry, and workers in wood working and metal industries, from 1952 to 1971. Prices of 1969.

Kuva 4.3 Metsähallituksen vakinaisten metsätyöntekijöiden ja puu- ja metalliteollisuuden työntekijöiden nettovuosiansion reaalinen kehitys 1952–1971. Vuoden 1969 hinnoin.

those of forest workers increased more rapidly than those of other groups and they reached the same level as in industry at the beginning of the 1970's.

It should be emphasized that the comparison is only valid for permanent forest workers employed by the National Board of Forestry. In 1966 the annual income level of professional forest workers was about 15 % below that of permanent workers; this means that it will still take some time before it reaches the level of the wood working industries. But, if it continues to rise at a higher rate than that of the comparison groups, it may exceed the annual income of industrial workers by the middle of the 1970's.

44. The 1966 household survey

In 1966, the Central Statistical Office carried out a household survey, in which about 4000 households were questioned about their annual income and consumption. Forest worker households (95), households of workers in the wood working industry (91), the metal industries (148), the land and water construction industry (84) and agriculture (75) were selected from this sample and their annual income and

consumption calculated. The head of a forest worker household had to be employed for more than 100 days in paid forest and log floating work in 1966.

The income of the households is listed in Table 4.5 in the form of ratio values; that of the forest worker household is given the value 100. According to this table, gross earnings of the forest worker families were about half of the industrial workers. When we include his income from the farm or forest that he owns, the difference is somewhat smaller and the net income of the industrial worker is only 40 to 60 % higher. And when the income transfers and direct taxes are considered, the disposable income of industrial workers is only 30 to 40 % higher than that of forest workers. There is a difference in size of the households: a forest worker household has an average of 5.0 persons, farmer households 3.6 persons and other groups 3.5 to 3.9 persons. Income differences are thus even larger when calculated per capita.

The results of this survey give a picture of the income level of the various groups similar to the comparison reported in chapter 42. They indicate that the differences may be larger than the 40 to 50 % mentioned earlier.

Table 4.5 Income of households in 1966. Income of forest worker households = 100.
Source: Table 13 in the Appendix.

Taulukko 4.5 Ruokakuntien tulot vuonna 1966. Metsätyöntekijäruokakunnan tulo = 100.
Lähde: Liitetaulukko 13.

Household Ruokakunta	Gross earnings Bruttopalkka- tulo	Net income Nettotulo	Disposable income Käytettävissä oleva tulo
Metal industry workers Metallityöntekijät	211	166	144
Woodworking industry workers Puutyöntekijät	182	144	132
Land and water construc- tion workers Maa- ja vesirakennustyön- tekijät	161	139	128
Forest workers Metsätyöntekijät	100	100	100
Agricultural workers Maataloustyöntekijät	80	76	81

45. The annual earnings of forest worker Paul Edvin Lundström, a case study

These are given as an example of the development of the level of annual earnings of forest workers. Lundström (born in 1908) worked for the Forest Research Institute in the Solböle district from 1933 until his retirement in 1963, with the exception of a couple of years. As most forest workers, he retired before the pension age of 65. When he was 30 he started feeling pains in his joints. Since 1954 he had continuous pains in the back, and his joints got gradually stiffer. His health condition was probably the cause of an accident he had in 1963, and after that he was no longer able to work. He had been one of the best workers of the Forest Research Institute.

Fig. 4.4 shows the development of Lundström's net earnings, expressed as real earnings at the price level of 1962. From these, expenses for the power saw, which Lundström used since 1959 are subtracted.

The figure shows that Lundström's annual earnings and their purchasing power increased, and his level of living rose. Two pronounced peaks occur in the development, one in 1945 and the other in 1955. The latter is explained by a general rise in earnings, as noticed in Fig. 4.3. The number of Lundström's working days

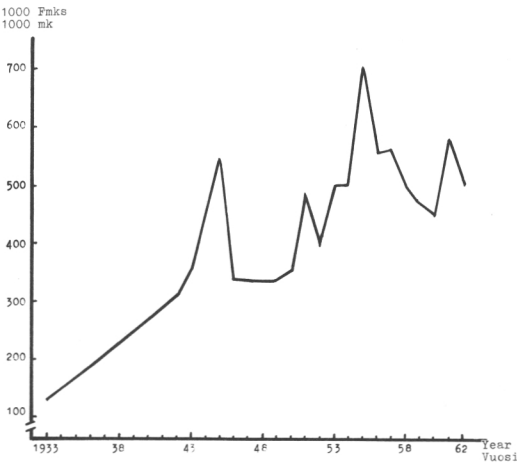


Fig. 4.4 Real net annual earnings of forest worker Paul Edvin Lundström from 1933 to 1962. Prices of 1962.

Kuva 4.4 Metsätyömiehen Paul Edvin Lundströmin reaaliset nettovuosiansiot 1933–1962. Vuoden 1962 hinnoin.

has been high, varying between 240 and 290 days annually.

Lundström has never been unemployed, unlike many other professional forest workers. If data on the annual earnings of professional forest workers were available, they probably would indicate very large differences between extreme values, due to unemployment. Lundström's annual earnings differ greatly from one year to another, because forest work is mainly based on piece work rates. Such fluctuations which are not encountered by salaried workers, may cause economic difficulties for the family.

46. Factors affecting annual income

46.1. Annual income structure

As Fig. 4.1 indicates, the annual earnings of forest workers vary greatly. The most important factors of these fluctuations are grouped in Fig. 4.5. The annual income of a forest worker is composed of two parts: the income from paid labour, and the entrepreneur's income from the farm which he or his family owns.

Annual earnings depend on the number of working days and daily earnings; the latter are determined by the piece work rate and daily product.

The essential factors affecting the fluctuations of the annual income are marked darker in the figure. Absenteeism depends on compulsory

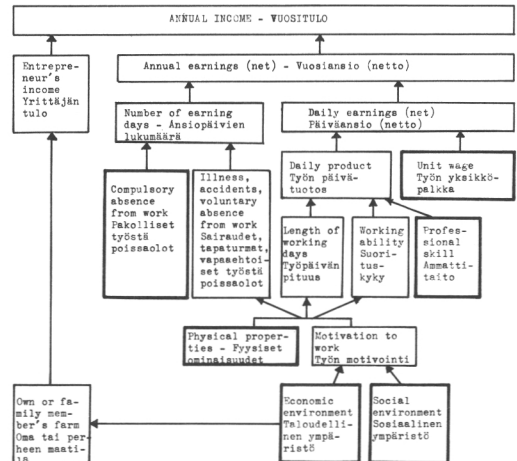


Fig. 4.5 Factors affecting the annual income of forest workers.

Kuva 4.5 Metsätyömiesten vuosituloon vaikuttavat tekijät.

absence due to unemployment, bad weather, or some other force majeure, or voluntary absence which is affected by the motivation to work. This in turn depends on the economic and social environment that the forest worker lives in. Illness and accidents also reduce the number of working days, and these depend in part on personal properties, physical condition and his economic and social environment.

The daily product is a direct function of the length of the working day, working ability and professional skill. The workers's physical condition and his economic and social environment determine the first two factors. The piece work rate is an exogenic variable which does not depend on personal properties nor on environmental variations. It varies with the kind of work; the goal in negotiating it is that daily earnings for different kinds of work should be the same.

The entrepreneur's income depends on whether the worker or his family have a farm and thus the possibility to acquire this kind of income.

The effects described in the figure are manifold and they can be interpreted in many ways. However, the purpose of the figure is not to present a complete picture of the composition of the annual income, but to serve as a frame of reference for the following discussion. The 1962 and 1963 material was used to analyze the role of these factors in the composition of the annual income of forest workers. Since it had been collected for other purposes, there were some deficiencies. It did not include data on different kinds of work, and thus the role of the piece work rate on income fluctuations could not be studied. No variables measuring the length of the working day and working ability were present. The interdependence of the 44 variables available were studied by factor analysis, and a regression analysis was used to reveal the role of these factors and variables with the highest factor loadings as explaining the variance of annual income. This study has been reported previously (REUNALA 1969), and we will therefore only discuss the main observations.

First it was observed that the number of working days explained the variance of the annual income better than did the daily product. This is easy to understand, since professional forest workers were absent from work for an

average of 42 working days in 1963 (Table 6 in the Appendix).

462. Number of working days

Unemployment is the main reason for absenteeism among forest workers. Two variables were connected with this phenomenon, age and ownership of farm. Unemployment was lowest among older workers and farm owners: if there is no forest work, the owner or his family members can always work on the farm. In this case entrepreneur's income makes up losses caused by unemployment, to a certain extent. However, the variables did not explain why the number of working days increased with age. We will study this in chapter 465.

Two more variables which reduce the number of working days are illness and days spent in camp, away from home. The role of the latter can be explained by the large amount of time spent travelling home or to the city, on the one hand. On the other, landless workers run greater risk of unemployment. Fig. 4.5 groups days spent in camp in the box "social environment". It was not possible to specify the dependence of economic and social factors and physical condition on the number of days of illness, nor the role played by other than personal properties, such as various infections, etc. Accidents had no effect on the number of working days nor on the daily product. This may be due to the fact that loss of earnings caused by accidents is incidental, whereas illnesses often reduce the working ability permanently.

463. Daily output

Variations in daily product were less important for the annual income. Factor analysis revealed the following.

An increase in the number of days of illness decreases the number of working days and the daily product, and thus reduces the annual income. The daily product first increased with age and then decreased; this will be discussed in chapter 465. It also increased with body size: tall and healthy men had larger daily products. These variables belong to the group "physical properties" in Fig. 4.5, although they are also closely connected with economic and social environment.

The variables were deficient with respect to the economic and social environment, but some hints were found. Being a farm owner decreased

the average daily product (total of paid and unpaid labour), mainly due to the fact that unpaid labour on the farm is not as profitable as paid work, and that this kind of economic prosperity gives the owner a chance to work at a moderate pace in the forest without overloading his capacity. The daily product grew with size of the residence. It also grew with the number of children. However, it may be that cause and effect are reversed and that high daily product and level of earnings make a large house and family possible. In this case, the primary factors affecting daily product would be physical condition and professional skill, and changes in the economic environment would be its consequences. The data do not enable a more detailed study of cause and effect.

Another variable connected with social environment is the days spent in camp. When their number increases, the daily product grows. Living in camp, away from his family and hobbies, the worker identifies with his work which results in efficiency and long working days.

This analysis is incomplete, mainly because the variables were selected for other purposes. but even these imperfect results show that the problems are large and many, and the task of levelling out the income differences will not be easy.

Finally we should point out once more that the causal relations between the factors affecting the annual income are not as simple as presented above. They do not form a chain, as in Fig. 4.5 but rather a circle. The social and economic environment and the physical condition affect the annual income, which in turn lies at the base of the development of these factors in the following years. Thus increase in body size or number of children may be interpreted either as causes or as effects of a higher annual income.

464. Annual earnings and physical fitness

In the above analysis no variable measured the working ability. This was done in the 1969 survey on health and level of living of forest workers (HEIKINHEIMO et al. 1972). A bicycle ergometer was used as measuring device. The annual earnings of these forest workers were acquired from the register of the Pension Security Center.

The measurement of the working ability was based on a gradual increase of the resistance of

Table 4.6 Working ability of forest workers, according to health survey (HEIKINHEIMO et al 1973) and data from Pension Security Center.

Taulukko 4.6 Metsätyömiesten vuosiansio suorituskyvyn mukaan. Metsätyömiesten terveys tutkimus 1969 (HEIKINHEIMO ym. 1973) ja Eläketurvakeskuksen työsuuhderekisteri.

Working ability measured with ergometer, kpm/min. Suorituskykyergometrin lopetuskuormitus kpm/min	Annual earnings entitling to pension Eläkkeeseen oikeuttava vuosiansio, mk	Men Miehii
Not measured/Ei kuormitettu	7214	15
300	5557	3
600	5980	9
750	6914	10
900	7855	32
Over 900	7892	44
All Kaikki	7491	113

the ergometer and a simultaneous recording of the heart pulsation. The pulse rate increases with growing effort, and a person's maximal performance may be determined from the degree of change. Table 4.6 shows the final resistance of the ergometer, denoting the performance. The group "no resistance" includes forest workers who could not be tested because of weak general condition or some other health risk. The table includes values for men who had been employed for at least nine months in paid forest and log floating work in 1969, according to data of the wage register of the Pension Security Center. In 1966, a comparison showed that the actual earnings of forest workers were a little less than 10 % higher than those in the wage register. There is a positive correlation between working ability and annual earnings. The group "no resistance" falls in the class of average earnings, which means that a considerable number of these men were only temporarily ill.

The working ability was supposed to affect only the daily product (Fig. 4.5). We observed earlier that the number of working days explains the annual income better than does the daily product. Because of the positive correlation between annual income and working ability, we may assume that the latter is also connected with the number of working days. Thus good working ability would mean high daily product and high number of working days as well.

465. Earnings and age

The above analysis does not provide us with a clear picture of the relation between age, number of working days and daily product. Therefore, the factors connected with age were studied separately in the 1966 material. The distribution of the annual income and some

variables affecting it are presented in figures 4.6a to 4.6e as function of age.

Fig. 4.6a gives net daily earnings as a function of age. A rise until age 35 is first followed by a steady decrease, and finally a steep one. According to OPHEIM (1964), the daily earnings of Norwegian forest workers have a similar

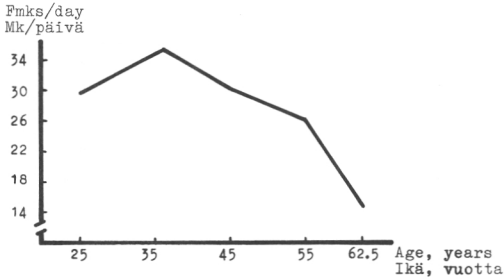


Fig. 4.6 a Daily earnings (net) as a function of age. January–February, 1967.

Kuva 4.6 a Päiväansio (netto) iän funktiona. Tammi–helmikuu 1967.

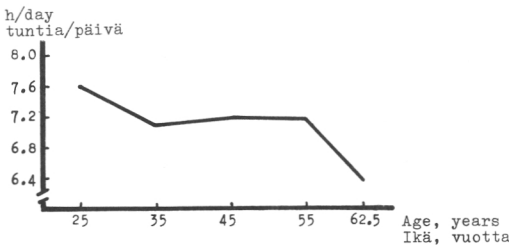


Fig. 4.6 b Length of working day as a function of age. January–February, 1967.

Kuva 4.6 b Työpäivän pituus iän funktiona. Tammi–helmikuu 1967.

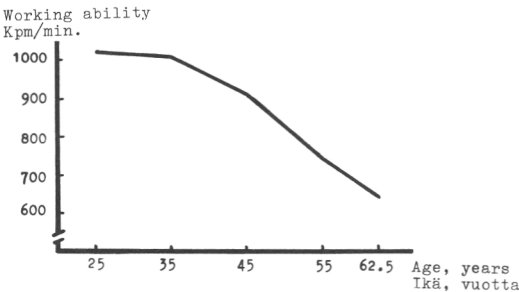


Fig. 4.6 c Working ability as a function of age in 1969.

Kuva 4.6 c Suorituskyky iän funktiona. Vuosi 1969.

development. As was pointed out in Fig. 4.5, the fluctuations in daily earnings are affected by the length of the working day, working ability, professional skill, and the piece work rate. Figures 4.6b and 4.6c show the first two variables as a function of age. The length of the working day first decreases, then remains about the same until age 55, and subsequently drops sharply. Changes in daily earnings and length of working day develop in the same direction after age 55. Working ability and earnings are reduced from age 35 on. Decreasing daily earnings are thus explained by both variables. The variables do not explain the rise of daily earnings before age 35, it probably depends on growing professional skill or variations in piece work rates. Since no variables measuring professional skill or kind of work were available, it is impossible to determine which variables cause this increase in earnings. It seems natural that professional skill should increase, particularly during the first working years.

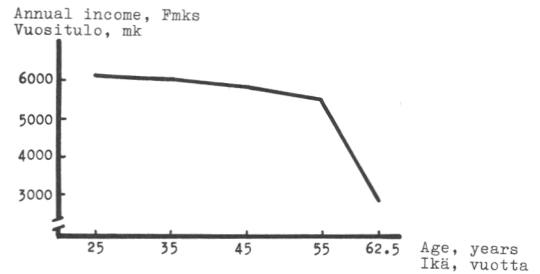


Fig. 4.6 d Annual income as a function of age in 1966.

Kuva 4.6 d Vuositulo iän funktiona. Vuosi 1966.

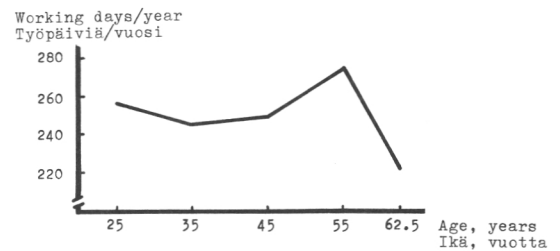


Fig. 4.6 e Number of working days as a function of age in 1966.

Kuva 4.6 e Työpäivien lukumäärä iän funktiona. Vuosi 1966.

Fig. 4.6d shows the annual income as a function of age. Annual income decreases very slowly until age 55, after which there is a steep drop. There is no peak as we find in the development of the daily earnings (Fig. 4.6a). This is due to the fact that the number of working days first decreases with growing daily earnings (Fig. 4.6e), but when daily earnings start to diminish, the annual income can only be kept at a constant level by increasing the number of annual working days. After age 55, the physical and mental strain caused by the work are too hard, which is reflected in the reduction of the number of working days and annual earnings.

All the series of figures 4.6a to 4.6e are calculated from a sample representing professional forest workers. The situation is only slightly different in the case of permanent forest workers as can be concluded from Fig. 4.7, which shows net earnings of permanent forest workers employed by the National Board of Forestry in 1971 as a function of age. Earnings increase until age 35, after which they decrease evenly and fairly steeply. The similarity of this curve to that of daily earnings (Fig. 4.6a) is explained by the fact that the number of annual working days of permanent workers remains constant.

The curve of annual earnings depicts the development of the daily product and earnings in work based on piece work rates. They first rise with increasing professional skill, but after age 35 the lower working ability and decreasing length of the working day result in a continuous reduction of the earnings.

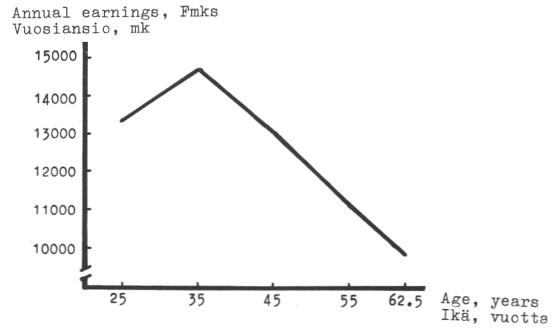


Fig. 4.7 Net annual earnings and age of permanent forest workers employed by the National Board of Forestry in 1971.

Kuva 4.7 Metsähallituksen vakinaisten metsätyöntekijöiden nettovuosiansio ja ikä vuonna 1971.

5. DAILY EARNINGS IN FINLAND

5.1. Daily earnings for different kinds of work

We mentioned earlier that daily product is one of the variables affecting the annual income. Factors which influence the daily product were studied in chapter 463. Now we will take a more practical look at the technical structure of the daily earnings of forest workers. Attention will be paid to the piece work rate, different kinds of work and their role, and comparisons will be made with the daily earnings of other worker groups.

Since 1935, the Ministry of Social Affairs, now Ministry of Social Affairs and Health, has controlled the development of the wages of forest workers by means of a piece work rate established annually, or sometimes more often. From 1957 on the employer and employee organisations have negotiated this rate. The

piece work rate in forest work is the figure used for calculating unit wages. This figure denotes the average daily earnings of a healthy adult man who is able to work, used to doing forest work, and who does his work at a normal pace. The unit wages for different kinds of work are determined with the help of the piece work rate, aiming at equal daily earnings irrespective of the kind of work.

The samples of forest workers of 1962 and 1963 and January and February 1967 provided additional information on the daily and hourly earnings. Fig. 5.1 shows the relative earnings for different kinds of work during these years; the value 100 is given to earnings in felling by power saw. There are three groups of men: The group "all forest workers" represents those who were employed for at least 50 days in paid

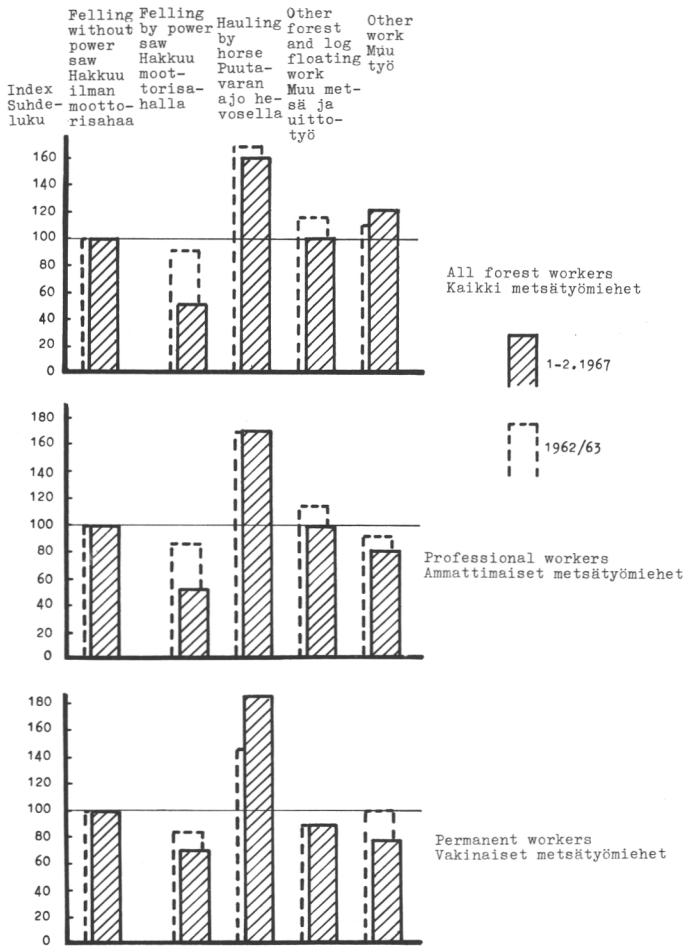


Fig. 5.1 Net daily earnings of all, professional and permanent forest workers in different kinds of work compared with net daily earnings in felling by power saw in 1962–1963 and January–February, 1967.

Kuva 5.1 Kaikkien, ammattimaisten ja vakinaisten metsätyömiesten nettopäiväansiot eri työlajeissa verrattuna moottorisahalla hakkuun nettopäiväansioon vuonna 1962/63 ja tammi–helmikuussa 1967.

Table 5.1 Number of working days spent in paid forest and log floating work in 1962/63 and 1966, as a function of type of work. "Professional workers" are included in "All workers". Source: Principal and supporting data. HEIKINHEIMO (1963, p.33).

Taulukko 5.1 Metsätyömiesten vuosina 1962/63 ja 1966 tekemien palkattujen metsä- ja uittotyöpäivien jakautuminen työlajeittain. "Ammattimaiset" sisältyvät ryhmään "Kaikki". Lähde: Pääaineisto ja tukiaineistot, HEIKINHEIMO (1963 s. 33).

Type of work Työlaji	All workers Kaikki		Professional workers Ammattimaiset		Permanent workers Vakinaiset		
	1962/63	1966	1962/63	1966	1962/63	1966	
					National Board of Forestry Metsähallitus	National Board of Forestry and Forest Research Institute Metsähallitus ja Metsäntutkimuslaitos	
			Working days, % Työpäiviä, %				
1. Felling by power saw Puutavaran teko moottorisahalla	38	60	42	61	60	53	
2. Felling without power saw Puutavaran teko ilman moottorisahaa	14	3	13	2	22	8	
3. Hauling by horse Puutavaran ajo hevosella	13	13	8	13	4	3	
4. Other forest and log floating work without horse or machine Muu metsä- ja uittotyö ilman työkonetta tai hevosta	35	24	37	24	14	36	
Total Yhteensä	100	100	100	100	100	100	

forest and log floating work, "professional workers" performed at least 100 days of forest and log floating work, and "permanent forest workers" form a representative sample of the men employed by the National Board of Forestry. Professional workers were included in the group "all forest workers". In all three groups earnings were lowest in felling without

power saw and highest in hauling with horse. The relative earnings in felling without power saw seem to have decreased in three years. The high daily earnings in hauling by horse are explained by the fact that only expenses paid in money are subtracted from the total earnings, and capital costs of the horse are not accounted for. The earnings in other forest work, including

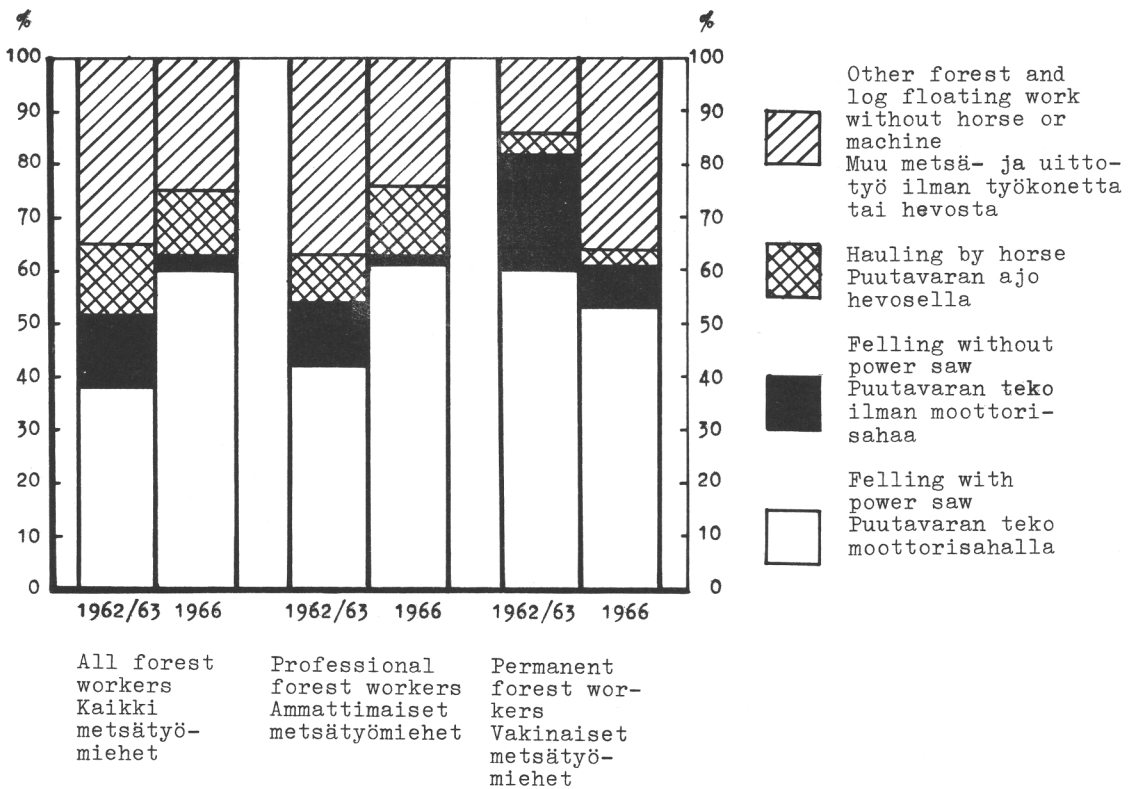


Fig. 5.2 Distribution of paid working days of forest workers in 1962–1963 and 1966, as a function of type of work. Source: Table 5.1.

Kuva 5.2 Metsätyömiesten vuosina 1962/63 ja 1966 tekemien palkattujen metsä- ja uittotyöpäivien jakautuminen työlajeittain. Lähde: Taulukko 5.1.

different kinds of silvicultural work and marking for felling, have been about equal to those in felling by power saw. Forest workers usually have to perform other tasks besides actual forest and log floating work. The group "all forest workers" has earned more than any other in these other tasks, whereas more professionally skilled workers earned less than fellers.

The daily earnings vary with the kind of work. It is difficult to say whether these variations are due to unit wages or to the fact that different types of workers select different kinds of work. The latter reason is probably valid in the case of fellers without power saw; this group of mostly older men is getting smaller.

The distribution of earning days for different kinds of work is presented in Table 5.1 and Fig. 5.2. Felling by power saw was the most important job in the 1960's and took up more

than half of all earning days in 1966. Felling without power saw has decreased to a small percentage. The role of other forest work has increased for the permanent forest workers, but decreased in the other groups. Permanent and professional workers seem to draw closer with respect to the kinds of work they perform. As soon as professional workers cease to haul by horse, the proportions of the various kinds of work will be quite similar in all groups. This is probably happening all the time, although there are no figures available from the last few years to show this development.

Forest work has changed radically since 1966. Felling without power saw and hauling by horse will soon be history. In 1971, the work of the permanent forest workers employed by the National Board of Forestry could be classified as in Table 5.2. The share of silvicultural work has increased so much that it could be put in

Table 5.2 Net daily earnings of permanent forest workers employed by the National Board of Forestry in 1971 as a function of type of work. Source: Wage register of the National Board of Forestry.

Taulukko 5.2 Metsähallituksen vakinaisten metsätyöntekijöiden nettopäivänsiot työlajeittain vuonna 1971. Lähde: Metsähallituksen palkkarekisteri.

Type of work Työlaji	Net earnings Nettoansio	
	Fmk/day mk/päivä	Index Suhdeluku
Felling by power saw Hakkuu moottorisahalla	63.25	100
Silvicultural work Metsänhoitotyö	46.50	74
Other forest work Muut metsätyöt	42.45	67
Other work Muut työt	38.55	61

a separate group. "Other work" mainly includes road building and house building and repairing. The differences between earnings in felling and other kinds of work have grown since 1966. In 1971, the daily earnings in other kinds of work were one fourth or one third of those in felling.

52. Comparison of daily earnings in 1962 and 1963 with 1966.

The Forest Wage Department of the Ministry of Social Affairs and Health collects data on the daily earnings of forest workers in some kinds of work. According to HEIKINHEIMO (1963, p. 34), these statistics can be used to compare the development of earnings, but they are not particularly well suited for comparing their level. This is mainly due to the sampling method; the statistics are based on camp samples, which means that the average daily earnings per person are often higher than when calculated from a person sample, and this for various reasons. The camp sample does not include the smallest camps where the weakest workers are found. Table 5.3 shows the comparison between the camp samples of the Ministry of Social Affairs and Health and the person samples of the 1963 and 1967 surveys. Earnings are 3 to

Table 5.3 Average daily earnings (gross) of men in camp samples of the Ministry of Social Affairs and Health, and in person samples of the Forest Research Institute Jan. 1st to June 30th, 1963 and the first quarter of 1967.

Taulukko 5.3 Keskimääräinen päiväansio (brutto) sosiaali- ja terveysministeriön työmaanäytteissä ja metsäntutkimuslaitoksen henkilönäytteissä 1.1-30.6. 1963 ja vuoden 1967 ensimmäisellä neljänneksellä.

Type of work Työlaji	Ministry of Social Affairs and Health Sample Sosiaali- ja terveysministeriön näyte	Forest Research Institute Sample Metsäntutkimuslaitoksen näyte	A/B %	Ministry of Social Affairs and Health Sample Sosiaali- ja terveysministeriön näyte	Forest Research Institute Sample Metsäntutkimuslaitoksen näyte	A/B %
	A	B		A	B	
	1.1-30.6.1963			1-31.3.1967	1-28.2.1967	
Felling by power saw Puutavaran teko moottorisahalla	21.9	20.4	107	30.4	29.6	103
Felling without power saw Puutavaran teko ilman moottorisahaa	16.6	13.4	124	17.6	13.7	128
Hauling by horse Puutavaran ajo hevosella	35.2	28.5	123	49.0	44.8	109

28 % higher in the former. The average daily earnings in the following comparisons are based on person samples.

Table 5.4 compares different kinds of work. Daily earnings of forest workers include the following kinds of work: Felling by power saw, felling without power saw, other forest and log floating work. Hauling by horse has been omitted, because these earnings are not

comparable. The daily earnings of road and railway construction workers were obtained from the Central Statistical Office, but those of industrial workers had to be calculated, since the statistics only include their hourly wages. The net daily earnings of the professional forest worker have the value 100 in the table. There is practically no difference between the various forest worker groups. "All forest workers" had

Table 5.4 Level of net daily earnings of forest workers compared to level of daily earnings of some other worker groups, in 1962-1963 and 1966.
Source: HEIKINHEIMO (1963, p. 37), principal data and supporting material, and wage statistics of the Central Statistical Office.

Taulukko 5.4 Metsätyömiesten päiväansiotaso (netto) verrattuna eräiden toisten työntekijäryhmien päiväansiotasoon vuosina 1962/63 ja 1966.
Lähde: HEIKINHEIMO (1963 s. 37), pääaineisto, tukianeistot ja Tilastokeskuksen palkkatilasto.

	1962/63		1966	
	Fmks/day mk/pv	Index Suhde- luku	Fmks/day mk/pv	Index Suhde- luku
1. <u>Forest workers</u> <u>Metsätyömiehet</u>				
Whole sample, hauling by horse not included Kaikki tutkitut, jalkamiespäivinä metsätöissä	16.8	99	25.9	98
Professional, hauling by horse not included Ammattimaiset, jalkamiespäivinä metsätöissä	17.0	100	26.3	100
Professional, annual income/working day Ammattimaiset, vuositulo/työpäivä	16.0	94	23.2	88
Permanent ¹⁾ , as foot men days in forest work Vakinaiset ¹⁾ , jalkamiespäivinä metsätöissä	18.1	106	26.2	100
Permanent ²⁾ , annual income/working day Vakinaiset ²⁾ , vuositulo/työpäivä	19.0	112	18.9	72
2. <u>Road and railway construction work of the State</u> <u>Valtion tie- ja rata-ym. työt</u>	16.4	96	24.7	94
3. <u>Industrial workers</u> <u>Teollisuuden työntekijät, miehet</u>				
Wood working industry, annual earnings/ working day Puuteollisuus, vuosiansio/työpäivä	20.2	119	-	-
Wood working industry, hourly earnings x 8 Puuteollisuus, tuntiansio x 8	21.9	129	29.1	110
Metal industry, annual earnings/working day Metalliteollisuus, vuosiansio/työpäivä	23.2	136	-	-
Metal industry hourly earnings x 8 Metalliteollisuus, tuntiansio x 8	23.8	140	31.3	119
4. <u>Agricultural workers</u> <u>Maatalouden työntekijät, miehet</u>	13.1	77	20.0	76

1) National Board of Forestry
Metsähallitus

2) Forest Research Institute
Metsäntutkimuslaitos

98, permanent forest workers had 100. The daily earnings of state-employed road and railway construction workers were below those of professional forest workers, but they were clearly higher in both years in the case of industrial workers. In 1966, the difference amounted to 10 to 19 % in favour of the industrial workers. The lowest level occurred in the group of agricultural workers, whose earnings were about three fourths of those of professional forest workers.

53. Feller and sawmill worker from 1921 to 1971

There are no other comparable surveys on the daily earnings of forest workers except

those from 1962 to 1963, and from January and February 1967. The development must thus be studied on the basis of data for certain kinds of work only. Fig. 5.3 shows the development of daily earnings in felling and hourly earnings in sawing from 1921 to 1971 as real earnings. Besides the index, the figure also includes the trend which is an average of 11 years.

This figure shows that the real daily earnings of the feller remained almost unchanged in the 1920's, but decreased by more than 40 % during the Depression of 1930–1932. For sawmill workers they rose in the 1920's by 40 %, but also decreased by 25 % in 1930–32. The forest worker was thus in an inferior situation at this time.

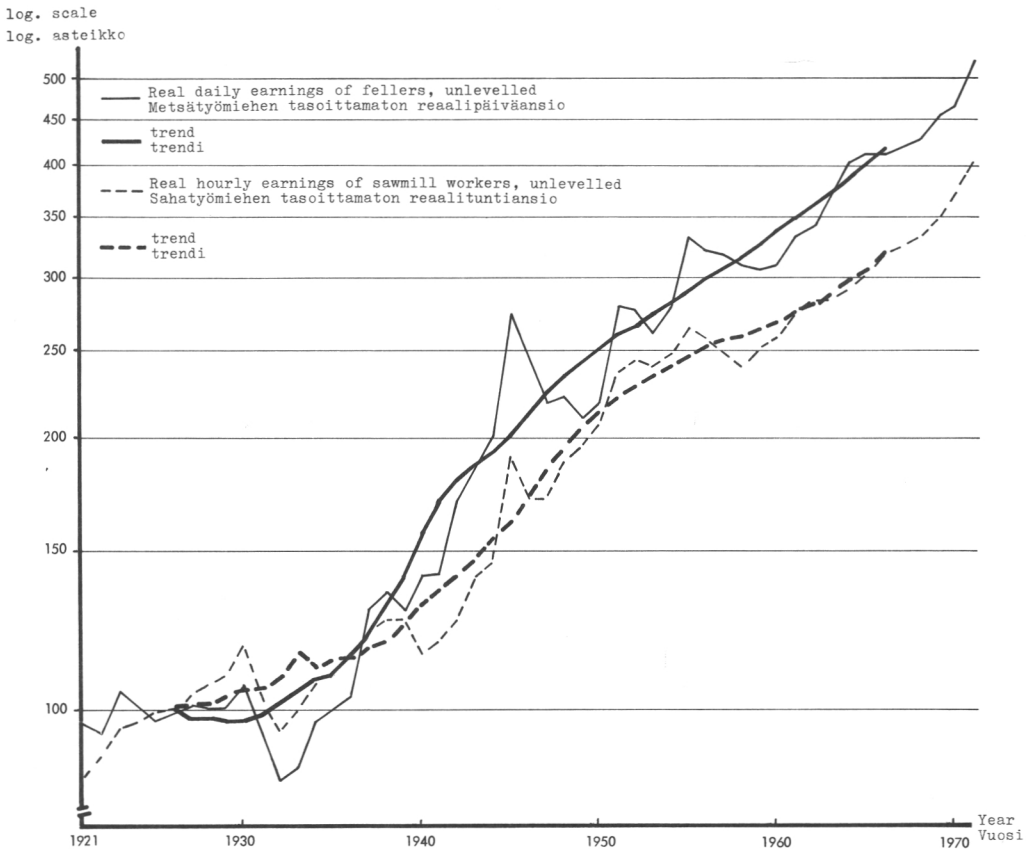


Fig. 5.3 Development of earnings of fellers and sawmill workers in 1921–1971. The trend is the moving average of 11 years. Source: Table 14 in the Appendix.

Kuva 5.3 Metsätyömiehen ja sahatyömiehen ansiotason kehitysvertailu v. 1921–1971. Trendi on 11 vuoden liukuva keskiarvo. Lähde: Liitetaulukko 14.

After the Depression, the real earnings of both groups increased, with an even sharper rise during the war, so that in the 1950's the real daily earnings of a feller were 2.6 times higher than in the 1920's, and those of sawmill workers 2.1 times.

After the war these earnings kept developing in the same direction, although at a slower rate than at the end of the 1930's and beginning of the 1950's. The relative increase of the real earnings in felling was still quicker than in sawing. At the beginning of the 1960's real earnings of the forest worker were 3.4 times those in the 1920's but only 2.7 times for the sawmill worker.

As a result of mechanization, the productivity in felling has grown from the beginning of the 1960's on. The series in Fig. 5.3 show that the level of real daily earnings in felling has risen by more than 30 % from 1960 to 1965, while that in sawing has increased by only 10 %. At the end of the 1960's both increased at about the

same rate. Thus in 1971, they were 6.5 times higher in felling and 4.0 times higher in sawing than in 1926. It is interesting to compare the rate of increase with the long-term development of wages in Sweden (see chapter 722).

It should also be noted from Fig. 5.3 that a typical feature of the development of earnings in forestry is its great fluctuation.

54. Index of level of earnings from 1948 to 1971

The Central Statistical Office has calculated the index for the level of earnings. Fig. 5.4 and Table 5.5 show the real index for workers in forestry, industry and agriculture, from 1948 to 1971. In forest work it is based on daily earnings in felling, from which power saw costs are subtracted; for industrial workers it is based on hourly and for agricultural workers on daily earnings. Earnings in these groups developed at the same rate in the 1950's. The main difference

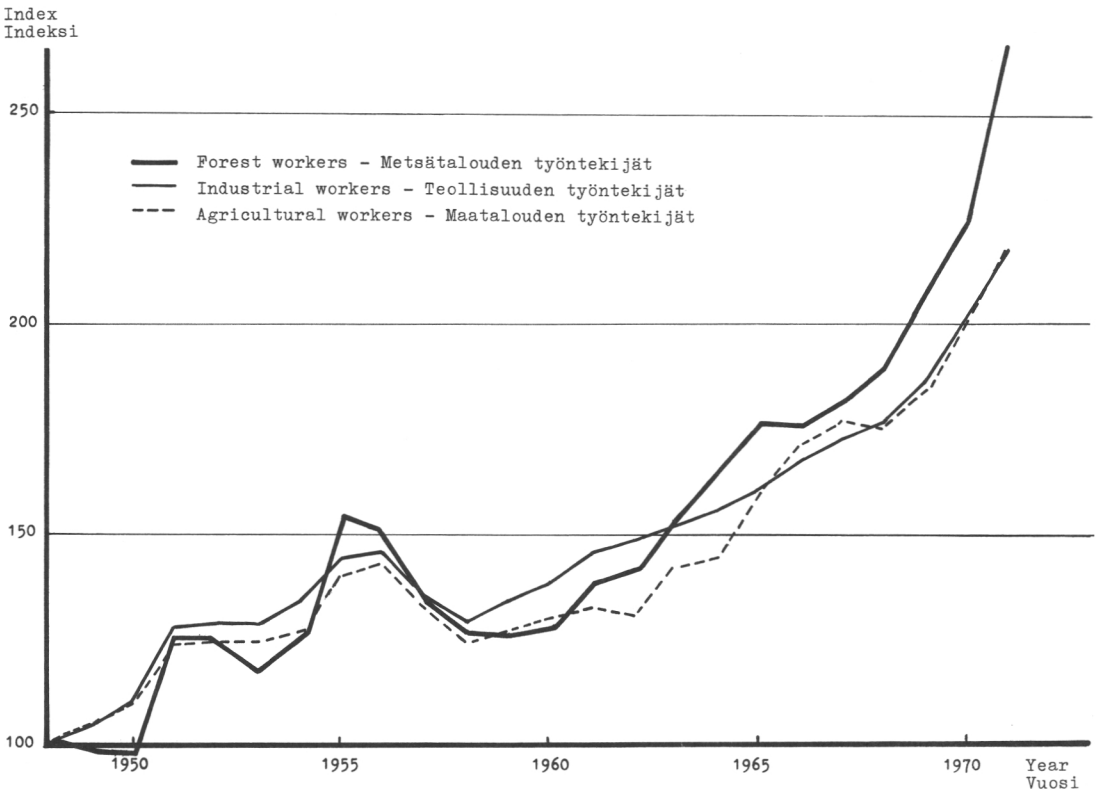


Fig. 5.4 Real indices of level of earnings from 1948–1971 in some occupations. Source: Table 5.5. Kuva 5.4. Eräiden elinkeinojen reaaliset ansiotasoindeksit 1948–1971. Lähde: Taulukko 5.5.

Table 5.5 Indices of earning levels of workers in forestry, industry and agriculture from 1948 to 1971. 1948=100.
Source: Wage statistics of the Central Statistical Office.

Taulukko 5.5 Metsätalouden, teollisuuden ja maatalouden työntekijöiden ansiotasoindeksit vuosina 1948-1971. 1948=100.
Lähde: Tilastokeskus, palkkatilasto.

Year Vuosi	Forestry Metsätalouden työntekijät		Industry Teollisuuden työntekijät		Agriculture Maatalouden työntekijät	
	nominal nimellinen	real reaali	nominal nimellinen	real reaali	nominal nimellinen	real reaali
1948	100	100	100	100	100	100
49	100	98	106	104	106	104
50	113	97	127	110	127	110
51	167	124	172	127	166	123
52	174	124	180	128	174	124
53	166	117	182	128	176	124
54	174	124	187	133	176	126
55	207	153	195	144	188	139
56	227	150	219	145	214	142
57	230	134	230	134	226	132
58	237	126	242	129	232	124
59	239	125	255	134	240	126
60	248	127	269	138	253	129
61	274	137	290	145	264	132
62	292	140	308	148	271	130
63	331	152	329	151	307	141
64	396	164	373	155	348	144
65	442	175	405	160	400	158
66	460	175	437	167	445	170
67	499	180	476	172	486	176
68	564	188	529	176	527	175
69	635	206	573	186	563	183
70	706	223	635	201	628	199
71	890	265	729	217	728	217

was the stronger fluctuations in those of forest workers. But in the 1960's the earnings of forest workers developed more rapidly than those of other groups; the same phenomenon was observed in the development of annual earnings,

presented in Fig. 4.3. According to this, it is likely that in the 1970's the daily earnings of forest workers will reach those of industrial workers.

6. HOURLY EARNINGS IN FINLAND

Hourly earnings are usually determined in wage statistics. But this is difficult in forest work, since the daily working time varies depending on the weather and other incidental factors. The employer does not usually keep track of working hours, because forest work is mostly piece rate work.

Forest workers were asked to estimate their working time in working days and hours, in the 1963 and 1967 surveys. Table 6.1 shows the

length of the working day and net hourly earnings in different kinds of work, for men employed in paid forest and log floating labour for more than 50 days per year. The working days were shorter in the beginning of 1967 than in 1963. Part of this difference is due to the time of the year; the survey of 1967 was made in January and February, when short days and severe coldness shorten the working days. According to a survey from 1963 to

Table 6.1 Hourly earnings of forest workers, employed in paid forest and log floating work for more than 50 days, in forest and log floating work and other paid work from January to June 1963, and January to February 1967.

Taulukko 6.1 Yli 50 päivää palkattua metsä- ja uittotyötä tehneiden metsätyömiesten tuntiansio metsä- ja uittotöissä ja eräissä muissa töissä tammi-kesäkuussa 1963 ja tammi-helmikuussa 1967.

Type of work Työlaji	1.1-30.6.1963		1.1-28.2.1967	
	h/day t/pv	net earnings Fmks/h netto- ansio mk/t	h/day t/pv	net earnings Fmks/h netto- ansio mk/t
Felling by power saw Puutavaran teko moottorisahalla	7.5	2.20	7.0	3.56
Felling without power saw Puutavaran teko ilman moottori- sahaa	7.1	1.92	6.2	2.15
Hauling by horse Puutavaran ajo hevosella	7.5	3.67 ¹⁾	7.1	5.54 ¹⁾
Other forest or log floating work without horse or machine Muu metsä- ja uittotyö ilman hevosta tai työkonetta	8.3	2.08	7.6	3.27
Other paid work without horse or machine Muu ansiotyö ilman hevosta tai työkonetta	7.9	2.32	7.6	3.90

1) Amortization and horse rent included in the figure.
Lukuun sisältyy hevosen poisto ja korko.

Felling by power saw
Hakkuu moottorisahalla

Felling without power saw
Hakkuu ilman moottorisahaa

Hauling by horse
Puutavaran ajo hevosella

Other forest and log floating work
Muu metsä- ja uittotyö

Other work
Muu met-sä ja uittotyö

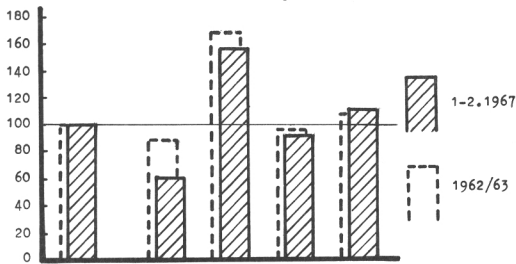


Fig. 6.1 Net hourly earnings of all forest workers in different types of work, compared with felling by power saw in the beginning of the years 1963 and 1967. Source: Table 6.1.

Kuva 6.1 Kaikkien metsätyömiesten nettotuntiansiot eri työlajeissa verrattuna moottorisahalla hakkuun nettotuntiansioon vuosien 1963 ja 1967 alussa. Lähde: Taulukko 6.1.

Table 6.2 Level of hourly earnings of forest workers during the first half of 1963 and from January to February 1967, compared to some other worker groups. Gross earnings, from which capital costs and operation costs of power saw are subtracted.

Taulukko 6.2 Metsätyömiesten tuntiansiotaso verrattuna eräiden toisten työntekijäryhmien tuntiansiotasoon vuoden 1963 alkupuoliskolla ja tammi-helmikuussa 1967. Bruttoansiot, joista moottosahan pääoma- ja käyttökustannukset on vähennetty.

Group of workers Työntekijäryhmä	1.1-30.6.1963		1.1-28.2.1967	
	Fmks/h mk/t	Index Suhde- luku	Fmks/h mk/t	Index Suhde- luku
1. <u>Forest workers</u> <u>Metsätyömiehet</u>				
Felling by power saw Puutavaran teko moottorisahalla	2.34	107	3.69	103
Felling without power saw Puutavaran teko ilman moottorisahaa	2.04	93	2.22	62
Other forest and log floating work without horse or machine Muu metsä- ja uittotyö ilman työkonetta tai hevosta	2.11	96	3.27	91
Total (so-called toot-man-work) Em.ryhmät yhdessä (ns. jalkamiestyöt)	2.19	100	3.58	100
2. <u>State road and railway workers</u> ¹⁾ <u>Valtion tie-, rata-ym. työt</u> ¹⁾	2.14	98	3.26	91
3. <u>Industrial workers</u> ²⁾ <u>Teollisuuden työntekijät</u> ²⁾				
Wood working industry Puuteollisuus	2.76	126	3.73	104
Metal industry Metalliteollisuus	3.16	144	4.09	114
4. <u>Agricultural workers</u> ²⁾ <u>Maatalouden työntekijät</u> ²⁾	1.58	72	2.40	67

1) January, 1967
Tammikuu 1967

2) First quarter of 1967
I neljännes 1967

1964 on the working time of fellers (HAKKA-RAINEN, 1965), the length of the working day in February and March, 1964 was 7.1 hours for power saw men, and 6.3 hours for men without power saw. No essential changes seem to have occurred since then.

The net hourly earnings of Table 6.1 have been calculated by dividing net daily earnings by the length of the working day. Hourly earnings are highest in hauling by horse and lowest in felling without power saw (Fig. 6.1).

7. EARNINGS OF FOREST WORKERS IN FINLAND, SWEDEN, AND NORWAY

7.1. Method of comparison

International comparisons of wages and prices are an interesting but difficult task. Even the calculation of averages covering similar things causes difficulties. There are no similar data available for calculating the average annual income of all forest workers in the three Northern countries. Little information exists on the costs for equipment (power saw) in Sweden and Norway. And, unless the average gross earnings in all countries include approximately equal proportions of equipment costs, it is impossible to compare them.

Another feature lacking in the data from Sweden and Norway is the entrepreneur's income, obtained from the farm or forest owned by the worker or his family. The comparison is somewhat easier here, since data on permanent forest workers with small entrepreneur's income or none are available from Sweden and to some extent also from Norway.

The greatest difficulty in international wage and price comparisons is to find a common measure. Official rates of exchange cannot well be used; this became apparent when the Finnish mark was devalued in 1967. After the devaluation, the wage level in Sweden measured in Fmks became about 30 % higher. No changes had occurred in the wages or purchasing power in either country.

The incompatibility of exchange rates and purchasing power has been avoided by using some consumption structure as the measure of purchasing power. The food consumption of a

The figure closely resembles the one of daily earnings (Fig. 5.1, all forest workers).

Hourly earnings of forest workers and some other worker groups are compared in Table 6.2. The comparisons are made for the years 1963 and 1967, since no other data are available. Hourly earnings of forest workers have grown quicker than those of other groups. They have reached the level of those in industrial work and exceeded the wages in road and railway construction and in agriculture.

certain type of family is expressed in the prices of each country. When the value of this "food basket" is used as a measure of the earnings, the effect of the exchange rates is eliminated. However, the results depend on the chosen consumption structure. It may well be that the consumption structure and prices differ so much in two countries that such comparison leads to two conflicting results. For example: Using the consumption structure of country A shows that the level of earnings in country B is higher, whereas using the consumption structure of country B shows that the level is higher in country A. A case like this is rare, but the possibility of obtaining such a result exists and should indicate that it is practically impossible to reach one single true conclusion. There may be several conflicting truths, but their true values are still equal.

Of course, a very narrow view is obtained when the levels of earnings are only compared on the basis of food prices. But it is justified because food still plays a major role in the consumption of forest worker families (In 1966 food accounted for 40 % of the total consumption of forest worker families in Finland). Its importance is explained by the low level of earnings, large size of families, and the exceptionally high energy requirement in forest work. The prices of another important item, housing, also would cause difficulties, especially if the residence is owned by the family. Finally, differences in the quality of housing and clothes, for example, are also difficult to take into account in international price comparisons.

In practice we always compare wages and prices in the Northern countries, especially when the Finnish forest labour force starts to move to Sweden. Thus the researcher has no right to hide behind the difficulties of comparison, but should attempt to estimate the level of earnings in the different Northern countries as well as possible.

72. Sweden

721. Annual earnings

Data on the working year and daily earnings of permanent forest workers have been collected since 1963 by the forest employer organization of South Sweden (SLA, Skogs- och Lantarbetsgivareföreningen), and by the corresponding organization of North Sweden (SA, Föreningen Skogsbrukets Arbetsgivare) since 1964.

From 1968 on the Swedish National Board of Forestry has published statistics on daily

earnings of permanent forest workers employed by the State.

Table 7.1 includes data on daily earnings. Gross earnings in felling are converted into net earnings as follows. The average daily earnings of the fellers for the period 1948 to 1967 are taken from the old Swedish forest wage statistics. These are based on "thumb" estimates of district foresters. The use of the power saw did not affect the average gross earnings of fellers in South Finland before 1960. The net daily earnings of Table 7.1 are therefore equal to the gross earnings, from 1948 to 1958. Changes from 1958 to 1962 were estimated, based on relative changes for haulers, according to the same statistics. Since 1963 the net earnings of the fellers were taken as 85 % of the gross earnings. The proportion is based on oral information given by Swedish experts.

The structure of the working year of permanent forest workers, according to the statistics of the forest employers of North

Table 7.1 Nominal gross daily earnings of forest workers in Sweden, excluding vacation pay and travel expenses.

Taulukko 7.1 Metsätyömiehen nimellinen päiviansio Ruotsissa brutto- ja nettomääräisenä, mutta ilman loma- ja matkakorvausta.

Year Vuosi	Gross earnings in felling Hakkuutyön bruttoansio			Silvicultural work Metsänhoitotyö		Average, felling Keskimäärin, hakkuu	
	Domän- verket ¹⁾	FSA ²⁾	SLA ³⁾	FSA ²⁾	SLA ³⁾	Gross Brutto ⁶⁾	Net Netto
	1	2	3	4	5	6	7
1948	17	-	-	-	-	-	17
49	19	-	-	-	-	-	19
50	18	-	-	-	-	-	18
51	22	-	-	-	-	-	22
52	32	-	-	-	-	-	32
53	30	-	-	-	-	-	30
54	32	-	-	-	-	-	32
55	34	-	-	-	-	-	34
56	36	-	-	-	-	-	36
57	38	-	-	-	-	-	38
58	39	-	-	-	-	-	39
59	40	-	-	-	-	-	40
1960	43	-	-	-	-	-	43
61	47	-	-	-	-	-	45
62	52	-	-	-	-	-	49
63	59	-	55	-	47	57	48
64	66	64	64	58	54	65	55
65	71	70	72	64	61	71	60
66	78	80	82	72	70	80	68
67	86	90	92	78	74	87	74
68	95	97	100	86	84	97	82
69	102	105	110	93	88	106	90
1970	115	123	126	107	101	121	103
71	136	146	146	134	110	143	122

1) Swedish National Board of Forestry
Ruotsin valtionmetsien hallinto

2) Forest industry in North Sweden - Föreningen Skogsbrukets Arbetsgivare
Pohjois-Ruotsin yhtiömetsät

3) Private forest employers in Southern Sweden - Skogs- och lantarbetsgivare-
föreningen
Etelä-Ruotsin yksityiset metsätyöntajat

4) Column 6 is the unweighted average of columns 1, 2 and 3
Sarake 6 on sarakkeiden 1, 2 ja 3 painottoman keskiarvo

Sweden (SA) is outlined in Table 7.2. Annual earnings include compensation for vacations and travel expenses, and are calculated on the basis of this material in Table 7.3. Alternate values of gross and net earnings were given to felling days (Table 7.1), average values to silvicultural work and average earnings supplied by the employer to other work. Work performed for other employers received the same value as

average earnings in forest works, and unpaid work received half of this value. The annual earnings in Table 7.3 were thus obtained as gross and net earnings, and the real ones at the prices of 1970. They are based on reliable data on the structure of the working year, collected by the North Swedish forest employer organization, and on the average earnings collected by the forest employer organization of South

Table 7.2 Structure of the working year of permanent forest workers in North Sweden.

Taulukko 7.2 Pohjois-Ruotsin (SA) vakinaisten metsätyömiesten työvuoden rakenne.

	working days työpäivää						
	1964	1965	1966	1967	1968	1969	1970
Felling Hakkuu	187	180	179	179	165	171	177
Silvicultural work Metsänhoito	20	21	17	18	23	17	12
Other work Muu työ	19	26	27	24	22	22	19
All work performed for principal employer Kaikki työt vak. työn- antajalle	225	226	223	221	210	210	208
Work done for other employers Työ muille työnantajille	10	5	4	4	4	2	2
Unpaid work Työ omaan lukuun	12	11	11	11	8	7	7
Total number of working days Työpäiviä yh- teensä	247	242	238	237	222	219	217
Sundays and holidays Pyhä- ja lomapäi- vät	90	91	91	92	115	115	118
Other days of absence Muut poissa- olopäivät	29	28	36	36	28	31	31

and North Sweden as well as by the Domänverket. They refer only to the permanent workers of these employers.

The forest employer organization for South Sweden (SLA) also collects data on the structure of the working year and gross earnings of its regular workers. However, they are less reliable. Nominal gross annual earnings of forest workers employed by the SLA, including compensation for vacation, have been:

Year	Annual earnings, gross, (SLA), Sw Crowns
1963	12 400
1964	14 500
1965	15 900
1966	17 900
1967	20 180
1968	20 900
1969	22 100
1970	26 200
1971	28 900

The main difference between these two series lies in the number of working days. The SLA statistics include the working days for the principal employer only. If earnings for other employers, too, were known, the differences in annual income would probably be small.

Annual net earnings of permanent forest workers (Table 7.3) will first be compared with those of Swedish workers in the metal, paper and wood working industries. The prices are for 1970.

The estimated annual earnings of industrial workers are obtained by multiplying the average hourly earnings received from the official statistics of Sweden by the average number of working hours per year. The time series are presented in Table 7.4.

By 1970 the level of earnings of permanent forest workers approached that of industrial

Table 7.3 Annual earnings of permanent forest workers in North Sweden.

Taulukko 7.3 Pohjois-Ruotsin (SA) vakinaisten metsätyömiesten vuosiansio.

	1964	1965	1966	1967	1968	1969	1970	1971
Gross earnings Bruttoansio	14 076	15 292	17 068	19 230	19 684	21 434	24 862	26 564
Net earnings Nettoansio	12 421	13 471	15 010	16 896	17 366	18 820	21 688	23 022
Compensation for vacation Lomakorvaus	9 %	9 %	9 %	9 %	9 %	9 %	9 %	9 %
Compensation for traveling Kulkuväline- korvaus	4,2 %	4,1 %	3,6 %	3,3 %	2,6 %	2,6 %	2,4 %	2,4 %
Total nominal value Yhteensä ni- mellisinä gross brutto	15 715	17 057	18 959	21 308	23 698	23 698	27 334	29 189
net netto	14 060	15 236	16 901	18 974	19 380	21 003	24 160	25 647
Total net, real value, prices of 1970 Yhteensä reaalisina, netto v. 1970 hintoina	18 334	18 923	19 740	21 213	21 279	22 431	24 160	23 826

Table 7.4 Real annual net earnings of Swedish permanent forest workers from 1964 to 1971 compared to real annual earnings of men in other industries. Prices of 1970.

Taulukko 7.4 Ruotsin vakinaisten metsätyöntekijäin vuosinettoansio vuosina 1964-1971 verrattuna eräiden teollisuusryhmien miesten vuosiansioon reaalisina vuoden 1970 hinnoin.

Year Vuosi	Metal industry Metalliteollisuus	Paper industry Paperiteollisuus	Woodworking industry Puuteollisuus	Permanent forest workers Vakin. hakkuumies
1964	22 600	21 300	20 000	18 300
65	23 500	22 400	21 000	18 900
66	24 000	22 700	21 300	19 700
67	24 400	23 100	21 900	21 200
68	24 700	24 200	22 400	21 300
69	25 300	25 600	23 300	22 400
1970	26 200	26 600	24 100	24 200
71	-	-	-	23 800

workers. This result will be compared in chapter 743 with the corresponding result from Finland.

We can mention here that the real annual earnings of Swedish permanent workers increased by 3.4 % per annum from 1964 to 1970. The number of yearly working hours was reduced by 30 days, and also decreased in industry, although at a slower rate. The annual real earnings of the industrial workers rose by 2,5-3,8 % per annum from 1964 to 1970.

722. Daily earnings

Data on the daily earnings of Swedish forest workers were accumulated since 1860, as reported by BAGGE et al. in a large survey on the wages and national income in Sweden from 1860 to 1930. When complemented by the data mentioned above, the wage series of forest workers cover a period of 111 years.

Table 7.5 includes indices of the real earnings of workers in industry and agriculture obtained from that source, and Fig. 7.1 is drawn on the basis of these data. The figure indicates that there have been two major trends, one from 1860 to 1920 and the other from 1940 on. In the latter the development has been about twice as fast as in the former.

Although the time series are drawn on the basis of data which are necessarily limited and not always very reliable, particularly before 1930, the picture of the relative development (rate of growth) of real daily earnings is reasonably correct. The relation between the earnings has remained practically the same from the latter part of the 19th century until the first World War. From 1860 to about 1920, or for a period of 60 years, the real values of the earnings rose at the fairly constant rate of an average 2 % annually, so that wages in 1920 were 2 1/2 times as high as those in 1860. But the first World War brought a shortage of labour, severe inflation from 1913 to 1920, equally severe or even worse deflation from 1920 to 1921, and an international economic depression in the 1930's. Consequently, the relation between wages in forest work, agriculture, and industry was broken. Due to deflation, the level of real earnings in agriculture soon decreased to 60 %, and in forest work to about 80 % of the highest level during the first years of the 1920's. However, industry suffered very little. Then in the 1920's, the relation between the level of earnings in forestry and agriculture returned to the situation of the 19th century, but real earnings remained practically unchang-

Table 7.5 Net real daily earnings of forest, agricultural, and industrial workers in Sweden from 1860 to 1969. 1860-1913 the cost of living index "1910-13 = 100", 1914- : "1914 = 100".

Taulukko 7.5 Ruotsin metsä-, maatalous- ja teollisuustyöntekijöiden reaaliapäiväänsio 1860-1969, netto. 1860-1913 elinkustannusindeksi "1910-13 = 100", 1914-, elinkustannusindeksi "1914 = 100".

Year Vuosi	Forestry Metsätyö- mies	Agriculture Maatyö- mies	Industry Teoll. työmies	Year Vuosi	Forestry Metsätyö- mies	Agriculture Maatyö- mies	Industry Teoll. työmies
1860	42	45	39	1916	-	98	92
61	41	44	38	17	120	102	88
62	43	46	39	18	109	103	89
63	43	47	41	19	130	101	93
64	45	49	43	1920	111	117	115
65	44	49	44	21	140	98	132
66	46	46	42	22	78	91	119
67	45	41	40	23	91	92	122
68	43	39	41	24	97	93	123
69	46	41	45	25	90	90	124
1870	49	44	47	26	95	93	130
71	52	44	47	27	93	93	132
72	54	50	48	28	93	93	132
73	62	59	50	29	92	95	139
74	64	59	51	1930	104	97	148
75	62	57	53	31	98	97	151
76	58	58	52	32	88	96	152
77	59	59	54	33	86	97	150
78	58	53	53	34	91	97	150
79	56	49	52	35	95	98	152
1880	57	50	54	36	96	104	150
81	58	50	55	37	123	116	151
82	61	56	57	38	143	122	155
83	65	60	57	39	125	129	158
84	68	62	62	1940	124	125	152
85	68	64	64	41	124	127	143
86	71	63	66	42	139	132	145
87	72	62	69	43	162	144	149
88	70	60	68	44	162	145	153
89	71	60	69	45	160	164	161
1890	73	63	69	46	175	183	174
91	71	63	68	47	198	194	192
92	70	67	69	48	206	223	198
93	76	70	72	49	218	228	204
94	76	73	77	1950	204	234	212
95	77	73	77	51	222	230	219
96	79	74	80	52	291	267	229
97	79	78	83	53	274	268	237
98	75	78	81	54	289	273	246
99	82	82	81	55	300	291	260
1900	86	86	83	56	297	294	269
01	84	84	83	57	301	301	272
02	84	83	85	58	298	305	277
03	81	84	85	59	299	317	287
04	83	86	88	1960	308	337	294
05	82	86	86	61	325	365	313
06	83	90	92	62	336	386	321
07	92	95	93	63	362	412	334
08	92	95	91	64	354	428	351
09	102	97	84	65	368	447	369
1910	102	99	99	66	391	460	375
11	104	102	102	67	419	485	390
12	97	98	99	68	444	516	408
13	97	101	100	69	474	547	430
14	100	102	101	1970	-	-	-
15	-	91	93	1971	-	-	-

probably was a result of the much stronger organization of industrial workers (HEIKINHEIMO, 1948).

The level of real daily earnings of Swedish industrial workers rose after the 1920's at an average rate of 2.8 % per year, which means that they were 3.6 times higher in 1970 than in 1922. This corresponded to an increase of 5.8 times in forest work (3.7 % annually) and 6.1 times in agriculture (3.9 % annually).

We should also mention that, from 1948 to 1970, the level of real earnings rose 2.2 times for industrial workers, 2.3 times for forest workers and 2.4 times for agricultural workers. The

annual increase rates were 3.5 %, 3.8 % and 4.0 % respectively.

During the last 22 years the development has remained constant, and the relative increase in daily real earnings has been equal to that from 1860 to 1920. The speed of change, which is linear on a logarithmic scale, is in reality accelerating.

The following discussion compares the development of average daily real earnings of Swedish male workers in forestry with that of workers in the metal, paper and wood working industries and agriculture from 1948 to 1971 (Table 7.6. and Fig. 7.2). Average nominal

Table 7.6 Net real daily earnings of Swedish workers in different occupations, from 1948 to 1971. Cost of living index 1948 = 100. Prices of 1970.

Taulukko 7.6 Eri elinkeinojen miespuolisten työntekijöiden reaalin nettöpäiväänsio Ruotsissa v. 1948-1971, Rkr. Elinkustannusindeksi "1949 = 100". Vuoden 1970 hintataso.

Year Vuosi	Forestry Metsätyö- miehet	Metal indus- try Metallityö- miehet	Woodworking industry Puuteoll. työmiehet	Pulp and pa- per industry Massa- paperi- teollisuuden työmiehet	Agriculture Maatalous- työmiehet
Real net daily earnings, Sw.Cr. Reaalinettöpäiväänsio, Rkr					
1948	40.9	47.4	43.3	45.7	34.1
49	44.8	51.9	43.6	45.3	34.7
1950	42.1	54.0	44.9	46.6	35.7
51	44.4	56.0	47.6	52.3	35.2
52	59.5	61.5	50.8	56.6	40.6
53	55.3	64.5	53.0	58.1	40.9
54	58.5	66.1	56.2	61.6	41.6
55	60.3	68.8	59.2	66.0	44.3
56	61.1	71.6	60.9	68.6	45.1
57	61.9	72.7	61.9	69.2	46.1
58	60.9	74.4	63.1	69.2	46.7
59	60.6	77.2	66.1	71.9	48.6
1960	62.3	78.1	67.3	74.2	51.4
61	65.2	82.2	70.8	77.5	55.5
62	68.0	85.2	74.0	78.8	59.0
63	72.8	88.4	77.6	81.8	63.0
64	73.0	92.2	81.7	85.5	65.4
65	74.5	96.6	86.1	90.3	68.2
66	79.4	98.2	87.6	92.2	70.3
67	85.0	101.9	91.2	96.1	74.0
68	90.0	106.3	95.3	103.0	78.7
69	96.1	111.6	101.2	111.0	83.5
1970	104.2	116.0	105.6	115.2	85.7
71	115.4	118.8	106.4	115.8	-

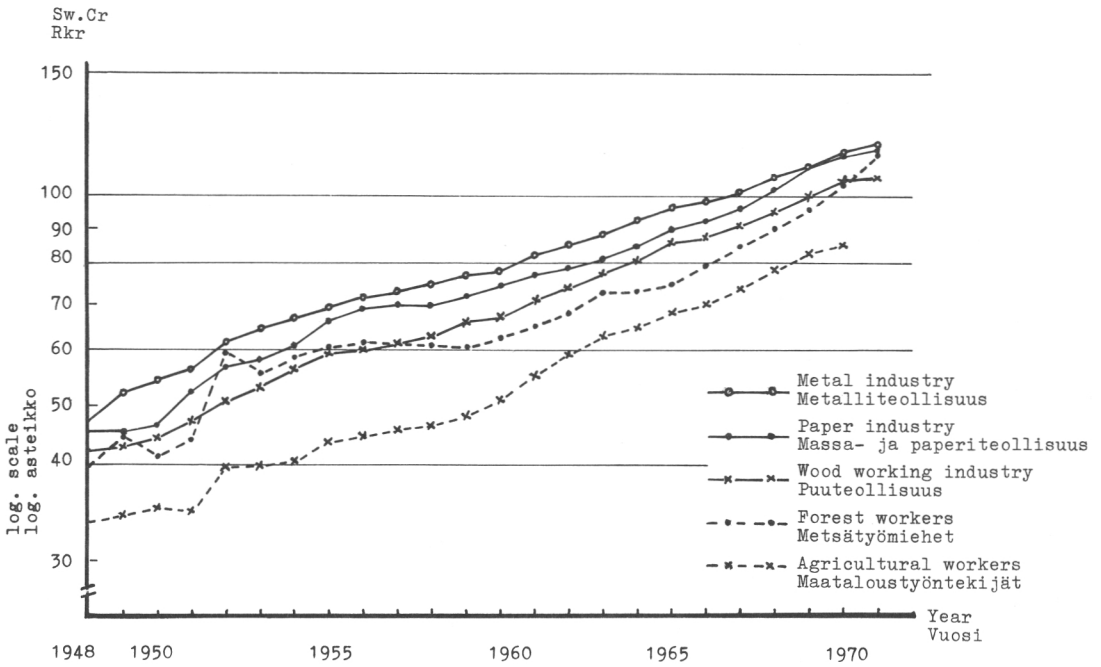


Fig. 7.2 The real net daily earnings of male Swedish workers in various occupations 1948–1970. Prices of 1970.

Kuva 7.2 Eri elinkeinojen miespuolisten työntekijöiden reaalin nettöpäiväansio Ruotsissa 1948–1970. Vuoden 1970 hinnoin.

earnings are divided by the cost of living index to get absolute real earnings. The wage series of forest workers are compiled in the manner described in chapter 721. The other series in the table are obtained by multiplying average hourly earnings by 8. No compensations for vacation etc. are included.

We may conclude the following from Fig. 7.2. There has been a fairly similar development in the earnings of all compared groups after the last war. The most prominent deviation from this occurs in the group of agricultural workers, whose earnings have been rising more slowly from 1950 to 1961 than those of the others. The real earnings have increased 2 1/2 times, or an average of 5 % annually, during the period 1948 to 1971.

The average daily earnings of fellers varied greatly after the war due to a lack of labour force. From the end of the 1950's on, they have reached about the level of earnings of the workers of industries.

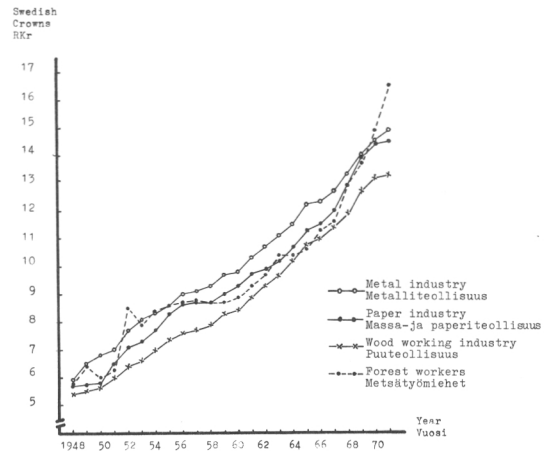


Fig. 7.3 The real net hourly earnings of Swedish workers in different occupations 1948–1971. Prices of 1970.

Kuva 7.3 Eri elinkeinojen miespuolisten työntekijöiden reaalin nettotuntiansio Ruotsissa 1948–1971. Vuoden 1970 hinnoin.

723. Hourly earnings

The daily earnings of industrial workers are based on hourly earnings multiplied by 8. Comparison of the hourly earnings in various occupations provides no new information except for the different length of the working day – 8 hours in industry and an average of 7 hours in

forest work – which results in different wage levels. Fig. 7.3 shows that the hourly earnings of fellers in Sweden have exceeded those of workers in wood working industry, and are on an equal level with those of workers in paper industry. This development has been necessary in order to compensate for the shorter working days of forest workers.

Table 7.7 Nominal gross daily earnings of Norwegian permanent forest workers, number of working days and annual earnings calculated from these in 1962, 1965, 1967, 1969, 1970 and 1971.

Taulukko 7.7 Norjan vakinaisten metsätyöntekijöiden nimelliset bruttopäiväänsiot, työpäivien lukumäärä ja näiden perusteella laskettu vuosiansio 1962, 1965, 1967, 1969, 1970 ja 1971.

	1962			1965			1967		
	N.Cr/ day Nkr/pv	Days/ year Pv/v	N.Cr/ year 1000 Nkr/v	N.Cr/ day Nkr/pv	Days/ year Pv/v	N.Cr/ year 1000 Nkr/pv	N.Cr/ day Nkr/pv	Days/ year Pv/v	N.Cr/ year 1000 Nkr/pv
Feller Hakkuumies	57	190	12	75	186	16	89	182	18
Feller and horse Ajomies ja hevo- nen	-	-	-	101	139	16	115	138	18
Agricultural tractor ope- rator Maataloustrak- torin ajaja	-	-	-	-	-	-	-	-	-
Forest tractor operator Metsätraktorin ajaja	-	-	-	-	-	-	-	-	-
	1969			1970			1971		
	N.Cr/ day Nkr/pv	Days/ year Pv/v	N.Cr/ year 1000 Nkr/v	N.Cr/ day Nkr/pv	Days/ year Pv/v	N.Cr/ year 1000 Nkr/pv	N.Cr day Nkr/pv	Days year Pv/v	N.Cr/ year 1000 Nkr/pv
Feller Hakkuumies	107	166	20	-	-	-	137	170	26
Feller and horse Ajomies ja hevo- nen	125	144	20	-	-	-	-	-	-
Agricultural tractor ope- rator Maataloustrak- torin ajaja	101	134	-	-	-	-	127	140	-
Forest tractor operator Metsätraktorin ajaja	114	189	-	-	-	-	151	190	-

73. Norway

Data on the annual, daily and hourly earnings of forest workers in Norway are only available since 1960. They are based on daily earnings, from which the annual earnings have been calculated for our comparisons. The information was supplied by Mr. TORSTEIN OPHEIM from Norges Lantbrukshøgskole.

The Norwegian organization of forest employers also collects data on the daily earnings of its permanent forest workers and on their annual labour input. The annual earnings can be estimated from these figures (Table 7.7).

When interpreting the estimated annual earnings, we should pay special attention to the fact that these data probably include the working days for the principal employer only. The annual number of these days varied between 170 and 190 for fellers. The corresponding figures for Sweden (Table 7.2), were 171 days in 1969 and 177 days in 1970. In addition to this, Norwegian fellers have performed silvicultural and other work for about 30 days per year (in Sweden 39 days in 1969, 31 days in

1970). They also must have worked for other employers and done unpaid work (9 to 20 days per year in Sweden).

Thus, we should add at least 30 days to the labour input figures from Norway to make them comparable to corresponding Swedish and Finnish estimates.

The estimated annual gross earnings of Norwegian permanent fellers are presented in Table 7.8. These figures were obtained by multiplying the gross annual earnings by the annual labour input figures. The table also includes net annual earnings, calculated in the same manner, but subtracting 15 % from gross earnings corresponding to the power saw costs.

The estimates in Table 7.8 show that the real annual earnings of fellers in Norway increased by 4.8 % per annum from 1962 to 1971, as measured by the cost of living index.

Next we will attempt a comparison of the average annual earnings of permanent forest workers with those of workers in some industries.

Table 7.9 presents the average hourly earnings of Norwegian male workers in the wood

Table 7.8 Estimated nominal annual earnings, gross and net of permanent forest workers in Norway in 1962, 1965, 1967, 1969, 1970 and 1971. Real earnings in terms of 1970 prices. Vacation pay etc. included.

Taulukko 7.8 Norjan vakinaisten hakkuumiesten arvioidut vuosiansiot vuosina 1962, 1965, 1967, 1969, 1970 ja 1971, brutto ja netto nimellisinä ja vuoden 1970 hinnoin. Loma-ym. korvaukset sisältyvät ansioon.

Year Vuosi	Nominal Nimelliset		Real, in terms of 1970 prices, net Reaaliset vuoden 1970 hinnoin, netto
	Gross Brutto	Net ¹⁾ Netto	
1962	12 200	10 400	14 900
1965	15 700	13 400	17 100
1967	18 300	15 600	18 400
1969	20 000	17 000	18 700
1971	28 300	24 100	22 700

1) Net = Gross - 15 %

Netto = Brutto - 15 %

Table 7.9 Real hourly and annual earnings of some Norwegian worker groups from 1961 to 1970. Prices of 1970.

Taulukko 7.9 Norjan eräiden miespuolisten työntekijöiden reaaliset tunti- ja vuosiansiot v. 1961-1970, vuoden 1970 hintatasossa.

Year Vuosi	Hourly earnings Ncr/h Tuntiansio Nkr/t			Annual earnings, 1000 Ncr Vuosiansio, 1000 kr		
	Metal in- dustry Metalli- teollisuus	Paper industry Paperi- teollisuus	Wood- working industry Puuteolli- suus	Metal in- dustry Metalli- teollisuus	Paper industry Paperi- teollisuus	Wood- working industry Puuteolli- suus
1961	10.57	10.21	10.54	23.1	22.3	23.1
1962	10.80	10.30	10.72	23.9	22.7	23.7
1963	11.24	10.65	11.14	24.6	23.4	24.4
1964	11.33	10.65	11.09	25.0	23.6	24.5
1965	11.97	11.14	11.59	26.5	24.7	25.7
1966	12.36	11.47	12.04	26.9	25.2	26.5
1967	12.81	11.76	12.35	27.9	25.6	26.9
1968	13.37	12.26	12.89	28.4	26.1	27.4
1969	14.20	12.92	13.73	29.0	24.4	28.5
1970	14.33	13.47	13.81	28.9	28.0	28.4
1971	15.19	14.30	14.21	32.1	31.6	31.4

working, paper, and metal industries from 1961 to 1970. These figures, supplied by the official statistics of Norway, were multiplied by the number of working hours spent in paid labour. The annual net earnings thus obtained are listed as real values at the 1970 cost of living level.

The real hourly earnings of these groups of industrial workers have risen from 1961 to 1971 by 3.0-3.7 % per annum. The increase in the level of real annual earnings has been practically the same for all groups in the 1960's, or 3.1-3.7 % per annum.

The level of real annual earnings of forest workers has reached that of the industrial workers and is probably exceeding it soon. When comparing the level of daily earnings the number of daily working hours of Norwegian industrial workers was assumed to be 8.

The comparison is presented in Table 7.10 and Fig. 7.4, and it is clearly seen that the earnings of permanent forest workers have been at about the same level as those of industrial workers in the 1960's, but that they have risen at a much quicker rate afterwards. Compared to the level of 1962, daily earnings increased as follows by 1971 (price level of 1970).

	1962-1971 Increase per annum of real daily earnings, %
Fellers	5.5
Workers in metal industry	3.8
Workers in wood working industry	3.1
Workers in paper industry	3.7

Table 7.10 Real daily earnings of Norwegian permanent forest workers and of workers in metal, paper, and woodworking industries, from 1961 to 1971. Prices of 1970.

Taulukko 7.10 Norjan vakinaisten metsätyöntekijöiden sekä metalli-, paperi- ja puuteollisuuden miespuolisten työntekijöiden reaaliset päiväänsiot v. 1961-71. Vuoden 1970 hinnoin.

Year Vuosi	Forest work Metsätyö	Metal industry Metalliteollisuus	Paper industry Paperiteollisuus	Woodworking industry Puuteollisuus
1961	-	84.5	81.6	84.3
1962	69.3	86.9	82.4	85.8
1963	-	89.8	85.2	89.2
1964	-	90.7	85.3	88.7
1965	81.1	95.8	89.2	92.8
1966	-	98.9	91.8	96.3
1967	89.2	102.5	94.1	98.8
1968	-	107.0	98.1	103.2
1969	100.2	113.6	103.4	109.9
1970	106.3	114.6	107.8	110.5
1971	112.0	121.5	114.4	113.7

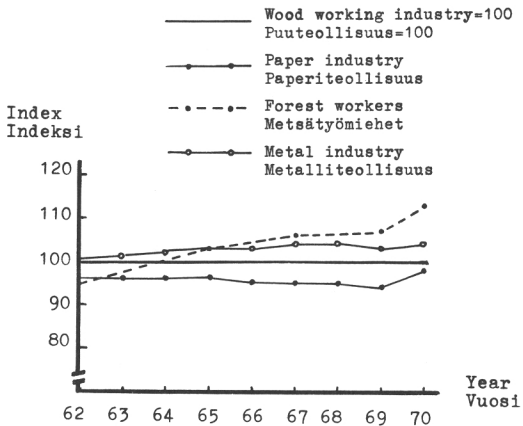


Fig. 7.4 Development of the real daily earnings of Norwegian forest and industry workers compared with the earnings of workers in wood working industry from 1962 to 1970, in terms of 1970 prices.

Kuva 7.4 Norjan metsätyömiesten sekä metalli- ja paperiteollisuuden työntekijöiden reaalisien päiväänsioiden kehitys verrattuna puuteollisuuden työntekijöiden päiväänsioon v. 1962-1970 vuoden 1970 hintatasossa.

The comparison of hourly earnings of Norwegian workers again provides little additional information, because data in forest work are absent unless we divide the daily earnings by 7. It is hardly likely that the number of daily felling hours would be higher. Fig. 7.5 is based on this assumption. It pictures the rapid increase of hourly earnings of forest workers, at a rate which exceeds that of industrial workers. From 1962 to 1970 the relative increase of real hourly earnings was as follows:

	1962-1971 Increase, % p.a
Fellers	10.5
Workers in metal industry	8.7
Workers in wood working industry	8.3
Workers in paper industry	8.6

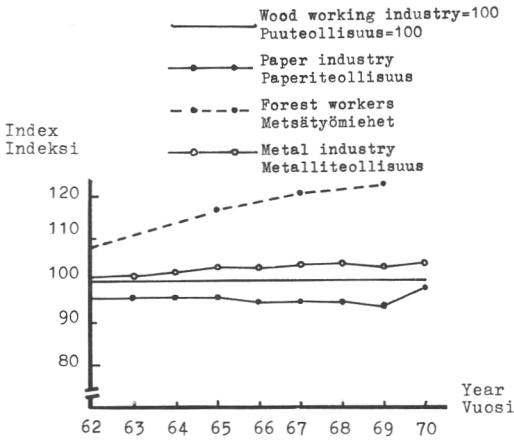


Fig. 7.5 Development of the real hourly earnings of Norwegian forest workers and workers in the metal and paper industries compared with the hourly earnings of workers in wood working industry from 1962 to 1970, in terms of 1970 prices.

Kuva 7.5 Norjan metsätyömiesten sekä metalli- ja paperiteollisuuden työntekijöiden tuntiansioiden kehitys verrattuna puuteollisuuden työntekijöiden tuntiansioon v. 1962–1970 vuoden 1970 hintatasossa.

74. Comparison between levels of earnings of Finnish, Swedish and Norwegian forest Workers

741. Annual earnings

In the following discussion we will first compare present levels of annual earnings of forest workers in Finland, Sweden and Norway, then outline those of other wage earner groups, and finally review the development in the three countries. Comparisons of daily earnings and, to some extent, hourly earnings will be made in the same way.

Only data on the annual earnings of permanent forest workers were available for comparison. The "food basket" method is used here. Retail prices of the food consumed annually by Finnish forest worker families (1966 household survey) were expressed as nominal prices for 1966, 1970 and 1971 in the currency of each country. This eliminated the effect of official exchange rates and inflation. The real annual income in each country was obtained by dividing annual income by price of the "food basket". The resulting figure gives an idea of the number of "food baskets" that can be purchased with

Table 7.11 Food consumption of the Finnish forest worker family in 1966, at retail prices of Finland, Sweden, and Norway in 1966 and 1970.

Taulukko 7.11 Suomen metsätyömiesten ravinnonkulutus v. 1966 hinnoitettuna Suomen, Ruotsin ja Norjan vähittäishinnoin v. 1966 ja 1970.

Average food consumption of the Finnish forest worker family in 1966 Suomalaisen metsätyömiestenperheen ravinnon kulutus keskimäärin v. 1966	Price of food Ravinnon hinta					
	Finland, Fmk Suomessa, Smk		Sweden, S. cr. Ruotsissa, Rkr		Norway, N. cr. Norjassa Nkr	
	1966	1970	1966	1970	1966	1970
Milk 1130 l						
Maitoa 1130 l	644	881	1153	1243	1028	1571
Butter 90 kg						
Voita 90 kg	545	770	670	814	917	761
Eggs 20 kg						
Munia 20 kg	71	82	118	129	175	200
Potatoes 250 kg						
Perunoita 250 kg	78	103	190	233	198	315
Beef 10 kg						
Naud.lih. 10 kg	82	138	153	191	150	184
Pork 20 kg						
Sian.lih. 20 kg	106	127	291	332	232	328
Wheat flour 140 kg						
Vehnäjauhoja 140 kg	189	210	186	228	164	174
Rye bread 50 kg						
Ruisleipää 50 kg	50	58	98	122	74	112
Coffee 30 kg						
Kahvia 30 kg	294	353	365	350	456	584
Sugar 150 kg						
Sokeria 150 kg	225	234	233	234	135	180
	2280	2960	3460	3880	3530	4410

The figures are rounded
Luvut pyöristettyjä

Table 7.12 Comparison between annual incomes of permanent forest workers in Finland, Sweden and Norway in 1966 and 1970. Ratio of annual income to price of "food basket" used as measure.

Taulukko 7.12 Suomen, Ruotsin ja Norjan vakinaisten metsätyömiesten vuositulojen vertailu vuosina 1966 ja 1970. Mittarina käytetty ruokakorin hintaa.

Year Vuosi	Annual income/price of "food basket" Vuositulolla saatuja ruokakoreja, kpl			Index Suhdeluku		
	Finland Suomi	Sweden Ruotsi	Norway Norja	Finland Suomi	Sweden Ruotsi	Norway Norja
1966	3.4	5.6	4.8	100	165	141
1970	4.1	7.1	5.4	100	173	132

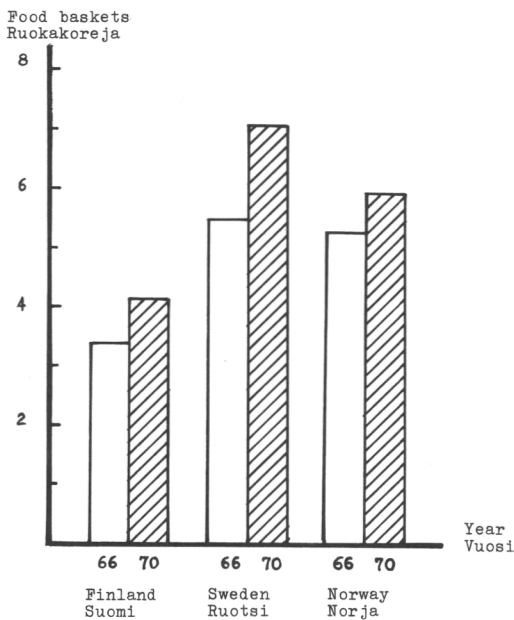


Fig. 7.6 Comparison of the annual earnings of permanent forest workers in Finland, Sweden and Norway in 1966 and 1970. Price of food basket in each country is used as measure.

Kuva 7.6 Suomen, Ruotsin ja Norjan vakinaisten metsätyöntekijöiden vuositulojen vertailu vuosilta 1966 ja 1970. Mittarina on ruokakorin hinta kussakin maassa.

the annual income of a forest worker in Finland, Sweden and Norway in each year mentioned.

Table 7.11 presents the average food consumption of Finnish forest worker families in 1966, and price of the food consumed expressed as retail price.

Measured by "food baskets", the annual income of permanent forest workers, particularly in Sweden but also in Norway, is considerably higher than that of permanent forest workers employed by the Finnish National Board of Forestry (Table 7.12, Fig 7.6).

If the comparison is made between all professional forest workers in Finland and Sweden, as is often done in reality when fellers move from Finland to Sweden, the earnings at least for 1966 were in Sweden twice as high as those in Finland.

We must keep in mind that the annual income of professional forest workers is about 15 % below that of state-employed permanent workers.

Costs of power saw and other equipment, and direct taxes were not subtracted from the annual earnings and no compensation was made for the transfers of income. We have assumed that costs and taxes are the same, proportionally in the three countries. According to information obtained, this seems to be true.

In 1966, total costs of the power saw were 16.3 % of the gross earnings of the feller in Finland, and was estimated to be 15 % in

Table 7.13 Annual earnings of permanent forest workers in Finland, Sweden and Norway in 1971, as percentages of those in woodworking and metal industries.

Taulukko 7.13 Suomen, Ruotsin ja Norjan vakinaisen metsätyöntekijän vuosiansio prosentteina puu- ja metalliteollisuuden vuosiansiosta vuonna 1971.

Country Maa	Annual earnings of forest workers, % of annual earnings of workers in Metsätyömiehen vuosiansio, % työntekijän päiväansiesta	
	metal industry metalliteollisuudessa	woodworking industry puuteollisuudessa
Finland Suomi	91	101
Sweden Ruotsi	101	109
Norway Norja	94	94

Sweden and Norway. The Central Organization of Tax Payers in Finland (Suomen Veronmaksajien Keskusliitto) relays the following information on direct taxes of this income class in 1966:

Finland	17 to 20 %
Sweden	18 to 22 %
Norway	17 to 21 %

There seem to be no great differences. However, the role of transfers of income and entrepreneur's income are not known for Sweden and Norway. The 1966 household survey lists the average income structure of the Finnish forest worker households as follows:

Gross earnings	Fmks 6196
- total expenses	340
= Net earnings	5856
+ net earnings from own farming..	1721
+ net earnings from own forestry..	395
+ net earnings from own building and entrepreneur's business	49
+ net earnings from capital	296
+ earnings from finance capital	14
= Total Net earnings	8331
+ transfers of income	1116
= Total	9447
- direct taxes	988
= Disposable income	8459

This list comprises the average income of forest worker households, and therefore cannot

be identified with the income structure of professional, much less with that of permanent forest workers, whose income from own farming and forestry is much smaller.

Annual earnings of permanent forest workers in the three Northern countries are compared in table 7.13 with those of workers in the wood working and metal industries. The comparison is based on indices, so that earnings of workers in the wood working industry and the metal industry alternatively receive the value 100. The material is from 1971.

From the table we can see that the average annual earnings in forest work in Sweden are higher than in wood working industry and about equal to those in the metal industry. In Norway the annual earnings of forest workers are lower than those of industrial workers. However, figures for Norway are uncertain. The annual earnings of Finnish forest workers exceed those of the wood workers, but are lower than in the metal industry.

742. Development of annual earnings

Changes that occurred from 1961 to 1970 in the annual earnings in forest work and wood working industries are presented in Table 7.14. Annual earnings of permanent forest workers are expressed as percentages of those of workers in the wood working industry for each country and year.

Table 7.14 Net annual earnings of permanent forest workers in Finland, Sweden and Norway, as percentages of those in woodworking industry in 1961-1970.

Taulukko 7.14 Suomen, Ruotsin ja Norjan vakinaisten metsätyöntekijöiden vuosiansio, netto, prosentteina ao. maiden puuteollisuuden työntekijöiden vuosiansiosta vuosina 1961-1970.

Year Vuosi	Finland Suomi	Sweden Ruotsi	Norway Norja
1961	86	-	-
1962	83	-	63
1963	81	-	-
1964	84	-	-
1965	88	87	66
1966	89	90	-
1967	93	94	68
1968	98	92	-
1969	101	93	66
1970	100	98	72

Earnings of forest workers have approached those of wood workers in all countries.

permanent forest workers, for Finland the average earnings for all fellers, according to the statistics of the Ministry of Social Affairs and Health, are used.

743. Daily earnings

A similar comparison by the "food basket" method can be made for daily earnings. Data for Sweden and Norway are again restricted to

This comparison (Table 7.15, Fig 7.7) indicates that the real daily earnings of forest workers in Sweden and Norway have been more than twice as high as those of the Finnish forest

Table 7.15 Comparison of the gross daily earnings of forest workers in Finland, Sweden and Norway in 1966 and 1970. Ratio of daily earnings to price of "food basket" used as measure.

Taulukko 7.15 Suomen, Ruotsin ja Norjan metsätyöntekijöiden bruttopäiväansioiden vertailu vuosina 1966 ja 1970. Mittarina käytetty ruokakorin hintaa.

Year Vuosi	Daily earnings/price of "food basket" Päiväansiolla saatuja ruokakoreja, kpl			Index Suhdeluku		
	Finland Suomi	Sweden Ruotsi	Norway Norja	Finland Suomi	Sweden Ruotsi	Norway Norja
1966	0.0113	0.0236	0.0232	100	209	205
1970	0.0138	0.0323	0.0283	100	234	205

1/100 food baskets
1/100 ruokakoreja

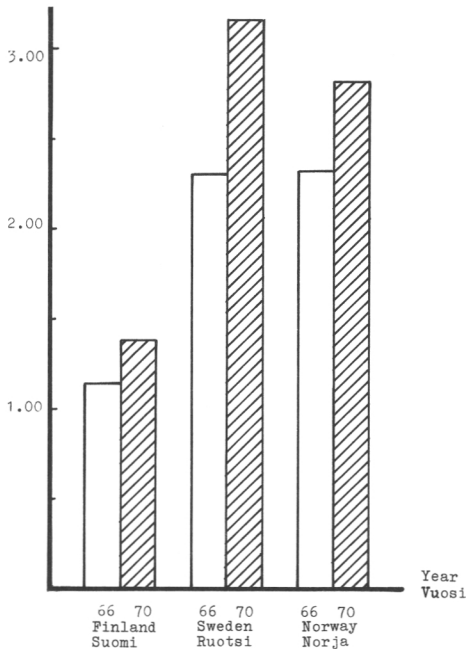


Fig. 7.7 Comparison of the daily earnings of permanent forest workers in Finland, Sweden and Norway in 1966 and 1970. Price of food basket in each country is used as measure.

Kuva 7.7 Suomen, Ruotsin ja Norjan metsätyöntekijöiden päiväansioiden vertailu vuosilta 1966 ja 1970. Mittarina on käytetty ruokakorin hintaa kussakin maassa.

workers as early as 1966. By 1970 the relative difference between Norway and Finland has remained constant but the difference between Sweden and Finland has still increased. As can be seen from Chapter 742, the difference in the annual earnings is not so wide as in daily earnings, when the "food basket"-method is used. In the annual earnings the ratios in 1970 were: Norway to Finland 132/100 and Sweden to Finland 173/100.

When we compare the daily earnings of forest workers with those of workers in the metal, paper and wood working industries in Finland, Norway and Sweden we can see that also in this respect the earnings of forest workers are highest in Sweden (Table 7.16). In none of these countries the earnings of forest workers exceed, however, those of the workers in metal industry. In Finland and Sweden the daily earnings of forest workers are higher than those of the workers in wood working industry, in Norway they are slightly lower.

When we look at the development of daily earnings of permanent forest workers in the Scandinavian countries during the last decade (Table 7.17), compared with that of the workers in the wood working industry, we notice that in Finland and Sweden the daily earnings of forest workers have passed those of wood

Table 7.16 Net daily earnings of forest workers in Finland, Sweden and Norway in 1971, as percentages of those of workers in wood working and metal industries.

Taulukko 7.16 Suomen, Ruotsin ja Norjan metsätyömiehen nettopäiväansio prosentteina puu- ja metalliteollisuuden työntekijän päiväansiosta v. 1971.

Country Maa	Daily earnings of forest workers, % of earnings of workers in Metsätyömiehen päiväansio, % työntekijän päiväansiosta	
	metal industry metalliteollisuudessa	wood working industry puuteollisuudessa
Finland Suomi	94	104
Sweden Ruotsi	97	109
Norway Norja	92	99

Table 7.17 Nominal daily earnings of forest workers in Finland, Sweden and Norway from 1961 to 1971 as percentages of those of workers in wood working industry in each country.

Taulukko 7.17 Suomen, Ruotsin ja Norjan metsätyöntekijöiden nimellinen netto-päiväansio prosentteina ao. maan puuteollisuuden työntekijöiden päiväansiesta vuosina 1961-1971.

Year Vuosi	Finland Suomi	Sweden Ruotsi	Norway Norja
1961	79	-	-
1962	81	-	81
1963	85	-	-
1964	89	87	-
1965	93	86	87
1966	89	90	-
1967	89	94	90
1968	92	95	-
1969	99	94	91
1970	100	99	96
1971	104	109	99

workers. In Norway the earnings of these groups are practically the same and if the trend continues, the earnings in forest work will soon pass those in wood working industry.

744. Hourly earnings

When the hourly earnings of forest workers are dealt with, difficulties are caused by the fact that they do not have, due to the working circumstances, any fixed number of daily working hours. Therefore the figures presented in the study are to some degree estimates. The hourly earnings used in the comparison are calculated by presuming that the average number of hours in forest work is daily seven.

In table 7.18a comparison has been made between the hourly earnings of workers in forestry, metal and wood working industries in 1971. The table indicates that the hourly earnings of forest workers are in all three countries distinctly higher than they are in metal and wood working industries. The relative difference is widest in Finland and Sweden.

Although the hourly earnings of forest workers are relatively high, the short daily working period causes that the daily earnings remain in all three countries lower than those in metal industry.

Table 7.18 Net hourly earnings of forest workers in Finland, Sweden and Norway as percentages of those of workers in metal and wood working industries in 1971.

Taulukko 7.18 Suomen, Ruotsin ja Norjan metsätyömiesten nettotuntiansio prosentteina metalli- ja puuteollisuuden työntekijöiden tuntiansiosta v. 1971.

Country Maa	Hourly earnings of forest workers, % of hourly earnings of workers in Metsätyömiehen tuntiansio, % työntekijän tuntiansiosta	
	metal industry metalliteollisuudessa	wood working industry puuteollisuudessa
Finland Suomi	112	124
Sweden Ruotsi	111	124
Norway Norja	105	113

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Appendix Table 1. Annual income and annual earnings of professional forest workers in 1966 as a function of social groups. Whole country.

Liitetaulukko 1. Ammattimaisten metsätyömiesten vuosiansio- ja vuositulotaso v. 1966 yhteiskuntaryhmittäin. Koko valtakunta.

Social group Yhteiskuntaryhmä	Gross earnings Bruttoansio	Capital costs of power saw Moottorisahan pääomakustannus	Net earnings Nettoansio	Entrepreneur's income Yrittäjätulo	Annual income Vuositulo	Number of men sampled Näytteessä miehiä
	1	2	3	4	5 = 3 + 4	6
	Fmks/man mk/mies					
1. Owners of farms, field over 5 ha Tilan omistajat, joilla peltoa yli 5 ha	4 770	91	4 163	3 131	7 203	9
2. Owners of farms, field 1-5 ha Tilan omistajat, joilla peltoa 1-5 ha	5 191	134	4 172	1 194	5 772	17
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv. avustaneet perheenjäsenet	5 838	176	5 306	122	5 252	9
4,5. Family members who have helped the farm owner more than 20 days Tilan haltijaa yli 20 pv. avustaneet perheenjäsenet	5 399	131	4 882	1 106	5 857	13
6. Others Muut	6 248	157	5 722	-	5 565	44
Total Kaikki	5 748	144	5 223	695	5 774	92

Appendix Table 2. Annual income and annual earnings of professional forest workers in 1963 as a function of social groups. Whole country.

Liitetaulukko 2. Ammattimaisten metsätyömiesten vuosiansio- ja vuositulotaso v. 1963 yhteiskuntaryhmittäin. Koko valtakunta.

Social group Yhteiskuntaryhmä	Gross earnings Bruttoansio	Capital costs of power saw Moottorisahan pääomakustannus	Net earnings Nettoansio	Entrepreneur's income Yrittäjätulo	Annual income Vuositulo	Number of men sampled Näytteessä miehiä
	1	2	3	4	5 = 3 + 4	6
	Fmks/man mk/mies					
1. Owners of farms, field over 5 ha Tilan haltijat, joilla peltoa yli 5 ha	3 918	70	3 586	2 624	6 140	9
2. Owners of farms, field 1-5 ha Tilan haltijat, joilla peltoa 1-5 ha	3 710	110	3 432	783	4 105	53
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv tilalla avustaneet perheenjäsenet	5 620	209	5 102	137	5 030	12
4. Family members who have helped the farm owner 20-100 days Tilan haltijaa 20-100 pv tilalla avustaneet jäsenet	4 431	186	4 014	792	4 620	22
5. Family members who have helped the farm owner over 100 days Tilan haltijaa yli 100 pv tilalla avustaneet perheenjäsenet	2 839	169	2 563	1 827	4 221	23
6. Others Muut	4 244	127	4 016	146	4 035	71
Total Kaikki	4 018	137	3 725	719	4 307	190

Appendix Table 3. Distribution of professional forest workers according to annual income in 1966.

Liitetaulukko 3. Ammattimaisten metsätyömiesten jakautuminen v. 1966 saadun vuositulon mukaan.

Social group Yhteiskuntaryhmä	Annual earnings, Fmks Vuositulo, mk										Number of men sampled Näytteessä miehiä
	under alle 1500	1500- 2499	2500- 3499	3500- 4499	4500- 5499	5500- 6499	6500- 7499	7500- 8499	8500- 9499	9500-	
1. Owners of farms, field over 5 ha Tilan omistajat, joilla peltoa yli 5 ha	-	-	1	-	3	-	-	2	1	2	9
2. Owners of farms, field 1-5 ha Tilan omistajat, joilla peltoa 1-5 ha	-	2	1	4	3	3	1	1	-	2	17
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv avustaneet perheen- jäsenet	-	-	2	2	2	1	-	1	1	-	9
4,5. Family members who have helped the farm owner over 20 days Tilan haltijaa yli 20 pv avustaneet perheen- jäsenet	-	-	1	4	1	2	-	4	1	-	13
6. Others Muut	2	1	4	10	8	5	6	3	3	2	44
Total Yhteensä	2	3	9	20	17	11	7	11	6	6	92

Appendix Table 4. Annual income and annual earnings of professional forest workers as a function of social groups and region¹⁾.
 Liitetaulukko 4. Ammattimaisten metsätyömiesten vuosiansio- ja vuositulotasot v. 1963 yhteiskuntaryhmittäin ja suuralueittain¹⁾.

Social group Yhteiskuntaryhmä	South Finland, South and Middle Ostrobothnia Etelä-Suomi, Etelä- ja Keski- Pohjanmaa				Middle and East Finland Keski- ja Itä-Suomi				North Finland Pohjois-Suomi			
	Gross earnings Brutto- ansio	Net earnings Netto- ansio	Annual income Vuosi- tulo	Men Miehiä	Gross earnings Brutto- ansio	Net earnings Netto- ansio	Annual income Vuosi- tulo	Men Miehiä	Gross earnings Brutto- ansio	Net earnings Netto- ansio	Annual income Vuosi- tulo	Men Miehiä
1. Owners of farms, field over 5 ha Tilan haltijat, joilla peltoa yli 5 ha	2 925	2 737	5 457	3	4 713	4 138	6 686	5	-	-	-	-
2. Owners of farms, field 1-5 ha Tilan haltijat, joilla peltoa 1-5 ha	3 578	3 302	4 063	14	3 781	3 312	4 105	25	3 744	3 327	4 119	8
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv tilalla avus- taneet perheenjä- senet	5 519	5 003	5 131	4	5 283	4 447	4 614	5	8 151	7 005	7 005	1
4. Family member who have helped the farm owner 20-100 days Tilan haltijaa 20- 100 pv tilalla avus- taneet perheenjä- senet	4 541	3 927	4 787	3	3 954	3 417	4 113	10	4 925	4 254	5 128	9
5. Family members who have helped the farm owner over 100 days Tilan haltijaa yli 100 pv tilalla avus- taneet perheenjäse- net	4 775	4 066	6 779	3	2 580	2 164	3 802	14	2 425	2 061	3 973	2
6. Others Muut	4 521	4 172	4 397	21	3 835	3 449	3 566	30	4 780	4 305	4 393	13
Total Kaikki	4 219	3 855	4 589	48	3 761	3 294	3 803	89	4 400	3 885	4 530	33

1) Regions are presented in the map on last page.
 Alueet näkyvät kartassa viimeisellä sivulla.

Appendix Table 5. Structure of the working year of professional forest workers in 1966 as a function of social groups.

Liitetaulukko 5. Ammattimaisten metsätyömiesten työvuoden rakenne v. 1966 yhteiskuntaryhmittäin.

Social group Yhteiskuntaryhmä	Total working days Työpäiviä yhteensä	Total earning days Ansiotyöpäiviä yhteensä	Earning days in forest and log floating work Ansiotyöpäiviä metsä- ja uittotyössä	Unpaid work Oman työn päiviä	Days absent from work Työstä poissaolopäiviä	Working days Arkipäiviä	
						Lost days due to unemployment, travel to work, bad weather Hukkapäivät työttömyyden, työmatkojen, huonon sään vuoksi	Men Miehiä
	1	2	3	4	5	6	
1. Owners of farms, field over 5 ha Tilan haltijat, joilla peltoa yli 5 ha	295	168	165	127	8	5	9
2. Owners of farms having a field 1-5 ha Tilan haltijat, joilla peltoa 1-5 ha	245	179	153	66	58	38	17
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv tilalla avustaneet perheenjäsenet	253	246	220	7	50	45	9
4.5 Family members who have helped the farm owner over 20 days Tilan haltijaa yli 20 pv tilalla avustaneet perheenjäsenet	257	197	162	60	50	44	13
6. Others Muut	250	243	227	7	53	34	44
Total Kaikki	255	218	197	37	48	34	92

Appendix Table 6. Structure of the working year of professional forest workers in 1963 as a function of social groups.

Liitetaulukko 6. Ammattimaisten metsätyömiesten työvuoden rakenne v. 1963 yhteiskuntaryhmittäin.

Social group Yhteiskuntaryhmä	Working days Arkipäiviä					
	Total working days Työpäiviä yhteensä	Total earning days Ansiotyöpäiviä yhteensä	Earning days in forest and log floating work Ansiotyöpäiviä metsä- ja uittotyössä	Unpaid work Oman työn päiviä	Days absent from work Työstä poissaolopäiviä	Campdays Kämppäpäiviä
	1	2	3	4	5	6
1. Owners of farms, field over 5 ha Tilan haltijat, joilla peltoa yli 5 ha	290	135	132	155	12	22
2. Owners of farms, field 1-5 ha Tilan haltijat, joilla peltoa 1-5 ha	266	185	166	81	36	14
3. Family members who have helped the farm owner less than 20 days Tilan haltijaa alle 20 pv tilalla avustaneet perheenjäsenet	256	245	176	11	47	74
4. Family members who have helped the farm owner 20-100 days Tilan haltijaa 20-100 pv tilalla avustaneet perheenjäsenet	264	200	189	64	40	65
5. Family members who have helped the farm owner over 100 days Tilan haltijaa yli 100 pv tilalla avustaneet perheenjäsenet	274	141	136	133	28	22
6. Others Muut	252	237	206	15	54	48
Total Kaikki	262	202	179	60	42	38

Appendix Table 7. Distribution of professional forest workers according to time use in 1966.

Liitetaulukko 7. Ammattimaisten metsätyömiesten jakautuminen ajankäytön mukaan v. 1966.

Days in 1966 Päiviä v. 1966	All working days Kaikki työpäivät		Earnings days Ansiotyöpäivät		Paid forest and log floating work Palkatut metsä- ja uittotyöpäivät	
	men miehiä	%	men miehiä	%	men miehiä	%
100-119	-	-	2	2	6	6
120-139	1	1	6	7	11	12
140-159	2	2	7	8	13	14
160-179	3	3	9	9	12	13
180-199	6	7	14	16	11	12
200-219	7	8	6	7	4	4
220-239	10	11	10	11	7	8
240-259	15	16	16	17	11	12
260-279	15	16	11	11	9	10
280-299	23	25	10	11	7	8
300-319	10	11	1	1	1	1
Total Yhteensä	92	100	92	100	92	100

Appendix Table 8. Distribution of professional forest workers according to time use in 1963.

Liitetaulukko 8. Ammattimaisten metsätyömiesten jakautuminen ajankäytön mukaan v. 1963.

Days in 1963 Päiviä v. 1963	All working days Kaikki työpäivät		Earning days Ansiotyöpäivät		Paid forest and log floating work Palkatut metsä- ja uit- totyöpäivät	
	men miehiä	%	men miehiä	%	men miehiä	%
100-119	9	5	9	5	22	13
120-139	18	11	18	11	25	15
140-159	15	9	15	9	20	12
160-179	19	11	19	11	27	16
180-199	18	11	18	11	16	9
200-219	26	15	26	15	23	13
220-239	20	12	20	12	8	4
240-259	14	8	14	8	10	6
260-279	19	11	19	11	12	7
280-299	9	5	9	5	5	3
300-319	2	1	2	1	1	1
yli 319	1	1	1	1	1	1
Total Yhteensä	170	100	170	100	170	100

Appendix Table 9. Distribution of professional forest workers according to time use in 1966.

Liitetaulukko 9. Ammattimaisten metsätyömiesten jakautuminen ajankäytön mukaan v. 1966.

Days in 1966 Päiviä v. 1966	Work on own farm Työ oman maatilan hoitamisessa		Fishing, hunting, raising of rein- deer Kalastus, metsäs- tys, poronhoito omaan lukuun		Other unpaid work Muu työ omaan lukuun		Total unpaid work Työ omaan lu- kuun yhteensä		Time used outside work Muuhen kuin työ- hön käytetty aika	
	1		2		3		4 = 1+2+3		5	
	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%
0	46	50	78	85	41	45	29	32	6	7
1-14	11	12	10	11	34	37	18	20	17	19
15-29	5	6	3	3	8	9	7	8	13	14
30-44	12	13	-	-	6	6	10	11	14	15
45-59	3	3	-	-	3	3	6	6	12	13
60-74	3	3	1	1	-	-	2	2	7	8
75-89	1	1	-	-	-	-	8	9	7	8
90-104	4	5	-	-	-	-	1	1	5	5
105-119	3	3	-	-	-	-	1	1	5	5
120-134	-	-	-	-	-	-	5	5	2	2
135-149	1	1	-	-	-	-	1	1	1	1
150-164	2	2	-	-	-	-	1	1	2	2
165-179	1	1	-	-	-	-	3	3	1	1
Total Yhteensä	92	100	92	100	92	100	92	100	92	100

Appendix Table 10. Distribution of professional forest workers according to time use in 1963.

Liitetaulukko 10. Ammattimaisten metsätyömiesten jakautuminen ajankäytön mukaan v. 1963.

Days in 1963 Päiviä v. 1963	Work on own farm Työ oman maatilan hoitamisessa		Fishing, hunting, raising of rein- deer, Kalastus,met- sästys omaan lukuun		Other unpaid work Muu työ omaan lukuun		Total unpaid work Työ omaan lukuun yhteensä		Time used outside work Muuhun kuin työ- hön käytetty aika	
	1		2		3		4 = 1+2+3		5	
	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%
0	28	16	140	82	165	97	23	13	4	2
1-14	27	16	27	16	3	2	27	16	31	18
15-29	19	11	2	1	2	1	20	12	40	23
30-44	14	8	1	1	-	-	13	8	27	16
45-59	14	8	-	-	-	-	12	7	24	14
60-74	10	6	-	-	-	-	14	8	13	8
75-89	10	6	-	-	-	-	11	6	18	10
90-104	10	6	-	-	-	-	11	6	5	3
105-119	14	8	-	-	-	-	14	8	3	2
120-134	6	3	-	-	-	-	7	4	3	2
135-149	3	2	-	-	-	-	3	2	1	1
150-164	8	5	-	-	-	-	8	5	1	1
165-179	3	2	-	-	-	-	3	2	-	-
180-194	3	2	-	-	-	-	3	2	-	-
195-209	1	1	-	-	-	-	1	1	-	-
Total Yhteensä	170	100	170	100	170	100	170	100	170	100

Appendix Table 11. Distribution of professional forest workers according to number of absence days in 1966.

Liitetaulukko 11. Ammattimaisten metsätyömiesten jakautuminen työstä poissaolopäivien määrän mukaan v. 1966.

Days in 1966 Päiviä v. 1966	Travel to work Työmatkat		School, studies, military service Koulu, opin- not, asevel- vollisuus		Unemployment Työttömyys		Workdays lost due to bad weather Hukkapäivät huonon sään takia		Vacation Lomapäivät		Illnes Sairauspäivät		Accidents Tapaturmas- ta johtuneet poissaolo- päivät		Other reasons Muut syyt	
	1		2		3		4		5		6		7		8	
	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%
0	91	99	91	99	26	28	87	95	80	87	57	62	83	90	83	90
1-4	-	-	-	-	1	1	3	3	2	2	12	13	3	4	1	1
5-9	-	-	-	-	4	5	-	-	-	-	8	9	-	-	4	5
10-14	-	-	1	1	9	10	-	-	3	3	2	2	1	1	2	2
15-19	-	-	-	-	3	3	1	1	1	1	5	6	1	1	-	-
20-24	-	-	-	-	8	9	-	-	1	1	1	1	2	2	-	-
25-29	-	-	-	-	3	3	-	-	4	5	-	-	1	1	1	1
30-34	-	-	-	-	3	3	1	1	-	-	-	-	1	1	-	-
35-39	-	-	-	-	5	6	-	-	-	-	-	-	-	-	1	1
40-44	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
45-49	-	-	-	-	3	3	-	-	1	1	-	-	-	-	-	-
50-54	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-
60-64	-	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
yli 70	-	-	-	-	22	24	-	-	-	-	3	3	-	-	-	-
Average number of days Päiviä keskimää- rin	0.5		0.1		33.1		0.6		2.0		9.4		1.5		1.3	

Appendix Table 12. Distribution of professional forest workers according to number of absence days in 1963.

Liitetaulukko 12. Ammattimaisten metsätyömiesten jakautuminen työstä poissaolopäivien määrän mukaan v. 1963.

Days in 1963 Päiviä v. 1963	Travel to work Työmatkat		School, studies military service Koulu, opinnot, asevelvollisuus		Unemployment Työttömyys		Bad weather Hukkapäivät huonon sään takia		Vacation Lomapäivät		Illnes Sairauspäivät		Accidents Tapaturmasta johtuneet poissaolopäivät		Other reasons Muut syyt	
	1		2		3		4		5		6		7		8	
	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%	men miehiä	%
0	118	69	163	95	67	40	43	25	61	35	88	52	143	84	44	26
1-4	30	18	2	2	9	5	47	28	46	27	35	20	3	2	76	45
5-9	14	8	3	3	22	13	47	28	30	18	17	10	7	4	40	23
10-14	6	3	1	1	14	8	18	10	13	8	9	5	9	5	6	3
15-19	1	1	-	-	9	5	10	6	6	3	4	2	4	2	3	2
20-24	-	-	-	-	9	5	3	2	6	3	6	3	2	1	1	1
25-29	1	1	1	1	5	3	2	1	5	3	3	2	-	-	-	-
30-34	-	-	-	-	3	2	-	-	1	1	-	-	1	1	-	-
35-39	-	-	-	-	5	3	-	-	-	-	1	1	-	-	-	-
40-44	-	-	-	-	3	2	-	-	-	-	1	1	-	-	-	-
45-49	-	-	-	-	3	2	-	-	1	1	-	-	1	1	-	-
50-54	-	-	-	-	7	4	-	-	1	1	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-
60-64	-	-	-	-	4	2	-	-	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
70-74	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-
75-79	-	-	-	-	3	2	-	-	-	-	2	1	-	-	-	-
80-84	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
yli 90	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-
Average number of days Päiviä keski- määrin	1.7		0.4		16.6		5.6		5.8		6.3		2.1		3.6	

Appendix Table 13. Incomes of households in 1966 by professional groups.
Source: The 1966 household survey of the Central Statistical Office.

Liitetaulukko 13. Kotitalouksien tulot v. 1966 ammattiryhmittäin.
Lähde: Vuoden 1966 kotitaloustiedustelu.

	Professional group Ammattiryhmä				
	Forest workers Metsätyöntekijät	Workers in wood working industry Puuteollisuuden työntekijät	Workers in metal industry Metalliteollisuus- den työntekijät	Land and water construction workers Maa- ja vesiraken- nusalan työntekijät	Agricultural workers Maataloustyön- tekijät
Gross earnings Bruttopalkkatulot	6 196	11 307	13 062	9 982	4 935
Net earnings Nettopalkkatulot	5 856	11 262	13 030	9 965	4 698
Net income from agri- culture and forestry Nettotulot maa- ja metsätaloudessa	2 116	283	264	186	1 264
Other net income Muut nettotulot	359	501	583	1 403	384
Total net income Nettotulot yhteensä	8 331	12 046	13 877	11 554	6 347
+ transfers of income tulonsiirrot	1 083	948	739	1 003	1 185
- direct taxes välittömät verot	988	1 779	2 333	1 724	679
+ transfers of capital pääomansiirrot	50	12	18	19	16
Disposable income Käytettävissä oleva tulo	8 509	11 227	12 300	10 851	6 869
Households Ruokakuntia, kpl	95	91	148	84	-
Average size of household, persons Ruokakunnan keskikoko, henk.	5.0	3.6	3.5	3.9	3.6

Appendix Table 14. Comparison of development of the level of earning of forest workers and sawmill workers from 1921 to 1971. The trend is the moving average of 11 years. Source: HEIKINHEIMO 1963, p. 43, Wage statistics.

Liitetaulukko 14. Metsätömiesten ja sahatömiesten ansiotason kehitysvertailu v. 1921-1971. Trendi on 11 vuoden liukuva keskiarvo. Lähde: HEIKINHEIMO 1963, s. 43, Palkkatilasto.

Daily earnings of fellers Hakkuumiehen päiviansio				Hourly earnings of sawmill workers Sahatyömiehen tuntiansio			Daily earnings of fellers Hakkuumiehen päiviansio				Hourly earnings of sawmill workers Sahatyömiehen tuntiansio		
Year Vuosi	nominal index nimelli- nen in- deksi	real index reaali- nen in- deksi	trend tren- di	nominal index nimelli- nen in- deksi	real index reaali- nen in- deksi	trend tren- di	Year Vuosi	nominal index nimelli- nen in- deksi	real index reaali- nen in- deksi	trend tren- di	nominal index nimelli- nen in- deksi	real index reaali- nen in- deksi	trend tren- di
1921	77	96	-	73	84	-	1946	834	248	215	620	172	172
22	74	94	-	75	89	-	47	957	219	227	804	172	184
23	83	104	-	81	96	-	48	1310	222	236	1190	188	194
24	82	101	-	84	97	-	49	1260	210	244	1260	196	204
25	81	97	-	88	99	-	50	1490	219	257	1510	207	214
26	82	100	100	88	100	101	51	2210	278	262	2010	235	221
27	85	101	98	93	104	102	52	2290	277	268	2160	243	228
28	85	100	98	97	107	102	53	2190	261	276	2160	241	234
29	86	101	97	98	108	104	54	2320	281	284	2200	249	239
30	84	107	97	98	118	105	55	2690	338	293	2260	265	245
31	68	94	98	81	105	106	56	2990	324	304	2480	259	252
32	58	83	101	72	95	108	57	3350	320	310	2690	249	256
33	60	87	104	73	99	116	58	3450	310	318	2830	239	259
34	66	97	107	78	107	112	59	3480	308	331	3010	251	264
35	69	100	110	81	109	113	60	3620	311	344	3210	259	269
36	78	113	114	84	114	113	61	3990	335	353	3510	278	274
37	94	129	121	95	122	115	62	4250	342	363	3720	282	280
38	100	135	130	100	126	119	63	4820	371	375	3915	283	287
39	98	129	140	102	126	123	64	5760	401	393	4458	292	297
40	127	142	156	112	116	131	65	6430	428	415	4821	302	308
41	151	142	170	134	118	136	66	6700	429	446	5266	317	321
42	213	170	179	172	127	141	67	7270	442	-	5684	325	-
43	266	187	188	214	141	147	68	8210	458	-	6298	331	-
44	299	199	194	236	146	154	69	9250	505	-	6799	349	-
45	575	272	203	431	191	161	70	10280	546	-	7467	373	-
							71	12960	647	-	8584	403	-

Appendix Table 15. Development of net annual earnings of permanent forest workers of the Finnish National Board of Forestry and workers in the metal and wood working industries from 1952 to 1971. Source: HEIKINHEIMO 1963, tables 7/41, 3/44; wage register of the National Board of Forestry; Industrial statistics, Wage statistics.

Liitetaulukko 15. Metsähallituksen vakinaisten metsätöntekijöiden ja puu- ja metalliteollisuuden miespuolisten työntekijöiden nettovuosiensiokehitys 1952-1971. Lähde: HEIKINHEIMO 1963, taul. 7/41, 3/44; Metsähallituksen palkkarekisteri, teollisuustilasto, palkkatilasto.

Year Vuosi	The National Board of Forestry Metsähallitus	Metal industry Metalliteol- lisuus	Wood working industry Puuteollisuus	The Finnish National Board of Forestry Metsähallitus	Metal industry Metalliteol- lisuus	Wood working industry Puuteolli- suus
	Nominal earnings, Fmks Nimelliset ansiot, mk			Real earning at 1969 prices Reaaliensiot vuoden 1969 hinnoin		
1952	2 840	3 960	3 520	6 110	8 510	7 570
53	2 780	4 000	3 590	5 870	8 440	7 570
54	2 700	4 240	3 660	5 700	8 950	7 720
55	3 380	4 430	3 830	7 330	9 610	8 310
56	3 780	4 590	3 900	7 370	8 950	7 600
57	3 630	4 830	4 290	6 350	8 450	7 510
58	3 600	4 870	4 400	5 900	7 990	7 220
59	3 380	5 150	4 680	5 480	8 340	7 580
1960	4 200	5 740	5 420	6 590	9 010	8 510
61	4 770	6 140	5 560	7 340	9 460	8 560
62	4 830	6 460	5 830	7 150	9 560	8 630
63	5 090	6 620	6 690	7 180	9 330	8 870
64	5 880	7 540	7 030	7 530	9 650	9 000
65	6 690	8 070	7 560	8 160	9 840	9 220
66	7 150	8 680	7 990	8 370	10 160	9 350
67	7 820	9 150	8 380	8 680	10 160	9 300
68	8 930 ¹⁾	10 050	9 150	9 110	10 250	9 330
69	9 960 ¹⁾	11 120	9 850	9 960	11 120	9 850
1970	10 860 ¹⁾	12 000	10 850	10 570	11 640	10 520
71	13 230			12 110		

1) Estimated
Arvioitu

AREAS
SUURALUEET

- 1 SOUTH FINLAND
ETELÄ-SUOMI
- 2 MIDDLE AND EAST
FINLAND
KESKI- JA ITÄ-SUOMI
- 3 SOUTH AND MIDDLE
OSTROBOTHNIA
ETELÄ- JA KESKI-
POHJANMAA
- 4 NORTH FINLAND
POHJOIS-SUOMI



Map. Study regions
Kartta. Suuralueet

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