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REGIONAL  
INCOME  
DIFFERENCES  
IN FINLAND,  
1966-96

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**Abstract:** Household Survey data is used to study income differences between and within regions in Finland during 1966-1996. We have five major (NUTS2) regions and apply four income concepts: factor income, gross income, disposable income and final income, and consider how per capita incomes have evolved regionally relative to the respective national averages. There has been regional convergence especially in disposable and final income per capita. Regional Gini-coefficients based on respective income concepts, both per capita and per Atkinson's equivalent unit, indicate that there are no big differences in income inequality across regions. Although inequality has increased over time when factor income is considered, it has remained much the same in case of disposable income and final income, until an increase occurs in mid-1990s, after the deep depression years in Finland. We also study how changes in earned and unearned income, direct taxes and transfers, affect income inequality.

**Key words:** regional income differences, convergence, income inequality

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**Tiivistelmä:** Tutkimuksessa tarkastellaan viiden (NUTS2) suuralueen välisiä ja sisäisiä tuloeroja Suomessa vuosina 1966-1996 kotitaloustiedusteluaineistojen avulla. Tulokäsitteitä on neljä: tuotannontekijä- ja bruttotulot, käytettävissä olevat tulot ja kokonaistulot. Niiden avulla verrataan henkeä kohti laskettujen alueellisten tulojen kehitystä suhteessa koko maan keskiarvoon. Alue-erojen kaventumista on tapahtunut erityisesti käytettävissä olevien ja kokonaistulojen osalta. Suuralueiden välillä ei ole merkittäviä eroja niiden sisäisen tulonjaon epätasaisuudessa (Gini-kertoimissa) laskettiinpa tulot henkeä tai ns. Atkinsonin kulutusyksikköä kohti. Tuotannontekijätuloilla mitattu eriarvoisuus näyttää kasvaneen yli ajan, mutta käytettävissä olevien ja kokonaistulojen osalta tilanne on säilynyt vakaana, kunnes eriarvoisuus näyttää hieman kasvaneen laman jälkeen 1990-luvun puolessa välissä. Työssä arvioidaan myös ansio- ja pääomatulojen, välittömien verojen ja tulonsiirtojen muutosten vaikutusta eriarvoisuuteen.

**Asiasanat:** alueelliset tuloerot, konvergenssi, tulonjako

## Yhteenveto (Finnish summary)

Tutkimuksessa tarkastellaan alueiden välisiä ja sisäisiä tuloeroja Suomessa vuosina 1966-1996. Erityisen kiinnostuksen kohteena on 1990-luvun laman vaikutus aluekehitykseen. Tutkimuksessa yhdistyy kaksi toisiinsa liittyvää, mutta usein erillään käsiteltyä asiaa, eli henkeä kohti laskettujen tulojen alueellisia eroja koskeva ns. konvergenssitutkimus ja tulonjakotutkimus.

Talouden globalisaatio ja integraatio ovat lisänneet kiinnostusta valtioiden ja alueiden välisiin tuloeroihin. Konvergenssitutkimusta on tehty kansainvälisellä tasolla valtioiden ja alueiden välillä sekä kansallisella tasolla valtioiden eri alueiden välillä. Toisaalta ihmisten välisistä tuloeroista on runsaasti tutkimustietoa eri maista.

Aluejakona tutkimuksessa käytetään NUTS2 suuraluejakoa, joka on Euroopan unionin aluepolitiikan virallinen luokittelu. Suomessa on kuusi NUTS2-tason suuraluetta: Uusimaa, Etelä-Suomi, Itä-Suomi, Väli-Suomi, Pohjois-Suomi ja Ahvenanmaa. Ahvenanmaata koskevia tuloksia ei raportissa esitetä, koska tilastoaineisto on tältä osin hyvin suppea.

Alueiden välisiä ja sisäisiä tuloeroja tutkitaan kotitaloustiedustelujen avulla. Tilastokeskus on suorittanut kotitaloustiedustelun vuosina 1966, 1971, 1976, 1981, 1985, 1990 ja 1994-96, joista viimeinen jakautuu kolmen vuoden ajalle. Kotitaloustiedustelujen käyttäminen mahdollistaa useiden eri tulokäsitteiden tarkastelun.

Tuotannontekijätulot koostuvat ns. markkinatuloista, eli palkoista ja erilaisista pääomatuloista. Bruttotulot saadaan, kun tuotannontekijätuloihin lisätään tulonsiirrot, ja käytettävissä olevat tulot saadaan, kun bruttotuloista vähennetään välittömät verot. Kokonaistulojen käsitteeseen päästään, kun käytettävissä oleviin tuloihin lisätään ilmaisten ja subventoitujen julkisten palvelujen arvo. Palvelujen arvottamisessa käytetään niiden tuotannon keskimääräisiä yksikkökustannuksia koko maassa vähennettynä käyttäjämaksuilla. Tutkimuksessa ei oteta huomioon suuralueiden hintatasoeroja, jotka liittyvät erityisesti asumiseen.

Hyvinvointivaltion tulonsiirto- ja verotusjärjestelmien alueellisia vaikutuksia voidaan tarkastella eri tulokäsitteiden avulla. Lisäksi tutkimuksessa käytetyn aineiston avulla voidaan arvioida hyvinvointivaltion vaikutusta alueiden sisäisiin tuloeroihin, joista ei juurikaan ole aikaisempaa tietoa.

Alueiden väliset henkeä kohti lasketut suhteelliset tuloerot ovat kaventuneet selvästi tarkasteluajanjaksolla. Nopeinta erojen pienenemistä oli vuosina 1966-1976, jonka jälkeen tulokäsitteestä riippuen konvergenssiä ei ole ollut havaittavissa tai se on ollut lievempää. Alue-erojen kaventumista on tapahtunut

erityisesti käytettävissä olevien tulojen ja kokonaistulojen osalta. Konvergenssin seurauksena Uudenmaan suhteellinen keskimääräinen tulotaso on laskenut kohti maan keskiarvoa ja Väli- ja Pohjois-Suomi ovat vastaavasti parantaneet suhteellista asemaansa lähestyen maan keskiarvoa. Myös Itä-Suomessa suhteellinen tulotaso on parantunut, mutta tuotannontekijätulojen osalta sen suhteellinen asema on heikentynyt vuoden 1981 jälkeen. Etelä-Suomessa tulotaso on kaikilla tulokäsitteillä ollut lähellä maan keskiarvoa koko tarkasteluajanjaksolla.

Voidaan sanoa, että alueelliset suhteelliset tuloerot henkeä kohti laskettuina ovat melko pieniä tällä hetkellä Suomessa. Hyvinvointivaltion mekanismit, eli tulonsiirrot, verotus ja julkiset palvelut ovat voimistaneet konvergenssiä. Näyttää myös siltä, että 1990-luvun lama ei ole kasvattanut alue-eroja; alueiden väliset suhteelliset tuloerot ovat hieman kaventuneet vuodesta 1990 viimeisimpään tarkasteluajankohtaan 1994-96 siirryttäessä.

Samaan aikaan kuin alueelliset tuloerot ovat kaventuneet, on alueellisessa väestörakenteessa tapahtunut suuria muutoksia. Uudenmaan väestö on kasvanut voimakkaasti, kun taas muualla kasvu on ollut huomattavasti vähäisempää tai väestö on vähentynyt, kuten on tapahtunut Itä-Suomessa. Tulojen konvergenssin lisäksi myös kotitalouksien koossa on ollut selvää erojen supistumista; niillä suuralueilla, joilla kotitalouden jäsenten keskimääräinen lukumäärä on ollut vuonna 1966 suurin, on jäsenten lukumäärä vähentynyt nopeimmin.

Suuralueiden välillä ei ole minään ajankohtana merkittäviä eroja niiden sisäisen tulonjaon epätasaisuudessa (Gini-kertoimissa). Tämä tulos pitää paikkaansa myös riippumatta tulokäsitteestä ja siitä laskettiinpa tulot henkeä tai ns. Atkinsonin kulutusyksikköä kohti. Tuotannontekijätuloilla mitattu eriarvoisuus näyttää kasvaneen yli ajan. Sitä vastoin bruttotulojen, käytettävissä olevien tulojen ja kokonaistulojen Gini-kertoimet pienenevät vuosina 1966-1976, jonka jälkeen tilanne on säilynyt vakaana, kunnes eriarvoisuus näyttää hieman kasvaneen laman jälkeen 1990-luvun puolessa välissä.

Hyvinvointivaltiolla on selvä tulonjakoa tasoittava vaikutus. Tulonsiirrot huomioon ottavan bruttotulon Gini-kertoimet ovat joka alueella huomattavasti pienemmät kuin tuotannontekijätuloihin liittyvät Gini-kertoimet. Välitön verotus ja julkiset palvelut edelleen tasoittavat tulojakaumaa. Näyttää siltä, että hyvinvointivaltio toimii eri suuralueilla samalla lailla, koska kaikilla alueilla eri tulokäsitteiden Gini-kertoimet ovat suunnilleen yhtä suuria.

Kansainvälisessä keskustelussa on viime aikoina esitetty, että tulonjaon epätasaisuus heikentää talouskasvua. Koska tutkimuksen mukaan tulonjako on Suomessa kaikkien suuralueiden sisällä hyvin samanlainen, alueiden kasvueroja ei voi meillä selittää alueellisilla tulonjakoeroilla.

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# 1. Introduction

The purpose of this paper is to study income differences between and within regions in Finland. We do this by utilising the Finnish Household Survey data, which enables us to present results by applying several income concepts and income transformations. Furthermore, we are able to study the evolution of regional income differences in Finland during a relatively long period of time, i.e. thirty years from 1966 to 1996. A special interest is, however, related to what happened to regions during the 1990s when the Finnish economy was in its worst post-war crisis.<sup>1</sup> In our study Finland is divided into six major regions based on the NUTS regional classification system of the EU.<sup>2</sup> These major regions correspond to the so called NUTS2 regions in Finland.<sup>3</sup>

Our analysis is related to two somewhat separate but related research areas, namely regional convergence analyses and studies on income distribution and inequality.

Research interest in income differences between nations and regions has brought about contributions based on the use of international data in "convergence analysis". Recent contributions in this area include e.g. Barro and Sala-i-Martin (1992) and Sala-i-Martin (1996a, 1996b). Regional studies with national data in Nordic countries include Dilling-Hansen, Petersen and Smith (1994), Dilling-Hansen and Smith (1997) and Groes (1998) in which Danish aggregate county and municipality data is analysed. Persson (1997) studied convergence in per capita incomes across the Swedish counties from 1911 to 1993. An Austrian contribution is by Palme (1995). In the UK earnings inequality across regions has been studied by Saleheen (1996).

In Finland Okko has studied post-war regional convergence of per capita value added at county level (Okko 1995) whereas Kangasharju (1997) uses information on taxable income from 88 areas during 1934-1993. This analysis differs from the above mentioned ones e.g. in that we shall use the Household Survey data which gives us much richer possibilities to study regional income differences than more aggregate data.

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<sup>1</sup> This study is part of a project called "*Economic crisis of the 1990s and regional development*". The whole project is one of the studies financed by the Academy of Finland under the research program "*The Economic Crisis of the 1990s*".

<sup>2</sup> NUTS (Nomenclature des Unités Territoriales Statistiques) is a regional classification system of the European Union, which is used to compile all common regional statistics of the EU. The NUTS classification is also used as the classification system in the regional policies of the EU.

<sup>3</sup> The six regions are: Uusimaa (surrounding Helsinki), Southern Finland, Eastern Finland, Mid-Finland, Northern Finland and Åland.

As another and related research topic, we use the Household Survey data also to study income differences within regions. There is a vast literature on the theory and measurement of inequality, and related to this, studies on the distribution of income at the micro level (e.g. Atkinson et al. 1995, Atkinson 1998, Jenkins 1995, Maasoumi 1995 and Atkinson 1997). Finnish studies in this area include e.g. Uusitalo (1988), Aura (1996), Sullström and Riihelä (1996), and Suoniemi (1998). These studies analyze income inequality and its developments with Household Survey data at national level in Finland. Jäntti and Ritakallio (1997) have used these data to study income inequality and poverty in Finland in the 1980s, and Jäntti (1997) has also done an international comparison of inequality and its background factors. Recent studies by Lehtinen (1998) and Uusitalo (1997) utilise annually available income distribution statistics micro data and concentrate on what happened to inequality during the depression of the 1990s.

In addition to separate analyses of convergence and inequality, these two topics are present in studies which explain economic growth among other things by measures of income inequality. This is an area of hot debate. For example, Persson and Tabellini (1994) have presented results based on cross-country data suggesting that greater economic inequality reduces future economic growth. This question has also been studied with a cross-sectional panel of U.S states by Partridge (1997). Our study has also connections to this topic with Finnish regional data.

The results to be reported here are a part of an ongoing project which started in connection with committee work on "Finland and EMU" during the Spring 1997. In that connection the aim was to produce new information on regional development as background for speculating about the regional effects of deepening integration. We also wanted to find out to what degree market forces, mobility of tax base and the mechanisms of the Welfare State have made the regional income distributions similar.

The first results on regional income differences were published (in Finnish) in Loikkanen, Laakso and Sullström (1997a). A later report (Loikkanen et al. 1997b, in Finnish) also included results on income distribution within regions. This paper differs from these previous contributions in the following ways. First, the regional division is different. Second, we apply four income concepts, factor, gross, disposable and final income. Gross income was not considered in the earlier papers. Third, we present results by using two income transformations, i.e. per capita scale and Atkinson's square root equivalence scale. The per capita transformation is typically used in income convergence analyses, whereas the square root equivalence scale is a common choice in studies on income inequality and welfare. And fourth, the period under study is longer than in the earlier studies. It begins now from the year 1966, instead of 1971, and ends to 1996

containing information from the whole latest household survey which, unlike previous annual surveys, covers three years 1994-96.

Regional income differences are affected by demographic development, migration and employment opportunities. We also present some information on population development in the major (NUTS2) regions of Finland estimated from our data. Thus it is possible to get a preliminary view about the connection between regional income differences and demographic development.

This paper is organised as follows. Chapter 2 introduces the data, the four different income concepts, and the two equivalence scales used in this study. Chapter 3 describes briefly macro economic development at national level and population development both at national and regional (NUTS2) level in Finland during 1966-1996. In Chapter 4 we consider regional price differences and real income developments in absolute terms. We also present information on regional value added per capita which can later be compared to our income based results. Chapters 5 and 6 are the main parts of this study, in which we present our results concerning relative income differences between regions and income inequality (Gini-coefficients) within regions, respectively. In Chapter 7 we consider the contributions of different income components to regional inequality in terms of inequality elasticities. Chapter 8 contains concluding remarks.

## 2. Data description and definitions

This paper studies income differences between and within regions in Finland by utilising the time series data of the Finnish Household Survey. The Household Survey has been carried out by Statistics Finland in 1966, 1971, 1976, 1981, 1985, 1990 and 1994-96. The latest available Household Survey, unlike earlier one year surveys, is stretched over three years. In this case we shall present results covering the whole survey period 1994-96 in the text and related figures whereas in Appendices we also present information on each year separately.

The Household Survey is a sample survey, and its primary goal is to estimate the structure of household consumption. This information is also used to define the weights of consumer price and cost of living indices. Households are interviewed twice and they keep account on their consumption for a certain period of time. In 1966, 1971 and 1976 this period was one month, but it was shortened to two weeks in 1981 in order to reduce the number of non-responding households.

In addition to consumption information the Household Survey data includes income information which is collected from various registers, such as records of the tax boards and the social security administration. Information on different types of income makes it possible to calculate factor incomes for each household, then add transfers and get gross income, and subtract direct taxes to get disposable income. A discussion on the merits and demerits of different measures (alternative income concepts, expenditure, consumption etc) in welfare analysis can be found from Atkinson (1998).

The Household Survey data also have information on subsidised public services consumed by households from 1971 onwards. These services include education, social and health services. Statistics Finland has assessed the net value of these services to households by their national average production costs minus user charges. When, the value of interest subsidies related to state housing loans is added to the net value of public services for each household, an estimate of the value of public service package is obtained. By adding the value of this package to disposable income we get final income. Statistics Finland has not assessed production cost based values for public services in the years 1994-96, and therefore we can present results based on final income only from 1971 to 1990.

In studies on welfare and income distribution the Household Surveys are widely used due to the rich set of variables they contain. The time series data of Household Surveys is a special data set constructed from the original data of separate Household Surveys by Statistics Finland. The aim is that all concepts and measures are consistent in different years. Naturally, this means that the set of variables is limited compared with the original Household Survey data.

However, the time series data has the essential variables needed in our longitudinal study.

In this paper income differences between and within regions are studied by dividing Finland into six regions. The division is made by using the NUTS classification system of the EU. There are six NUTS2 level regions, i.e. major regions in Finland. Five of them are in the mainland and the sixth is the Autonomous Territory of the Åland Islands. Figure 1 illustrates the division.

*Figure 1 The NUTS 2 regions in Finland*

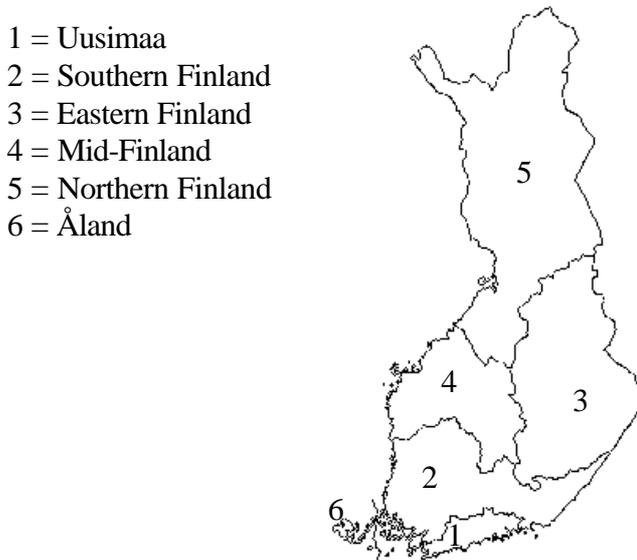


Table 1 presents the number of households in the sample by major region and by year. The sample size in the time series data of the Household Survey is about 3000 in 1966, 1971 and 1976 and about 8000 in 1981, 1985 and 1990. The latest Household Survey is stretched over the years 1994-96. The sample sizes in these three years are somewhat above 2000 each year, giving a total sample of almost 7000 households.<sup>4</sup>

The sample size in Åland especially in 1966, 1971, 1976, 1994, 1995 and 1996 is small. Therefore, in the following Åland is excluded from the figures. In the

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<sup>4</sup> A household is defined as consisting of persons who live and have meals together. The population in the Household Survey contains all private households. People living in institutions are excluded. It should be noted that the primary sample unit in the Household Survey is individual. Although the observation unit is a household, the sampling frame is a person based official register (Central Population Register). All the members of the household were assigned to the same regional stratum in the sampling frame. The sampling mechanism of the Household Survey utilises pre-strata which is based on regions. In this respect it is different e.g. from Income Distribution Survey which is based on taxation groups. (Laaksonen 1992).

tables of the Appendices Åland is included, but information concerning it must be taken with caution.

*Table 1*                      *Number of households in the sample by major region and year*

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
Uusimaa	527	511	709	1479	1382	1686	415	484	445	1344
Southern Finland	1272	1098	1234	2667	2707	2769	679	668	663	2010
Eastern Finland	654	571	512	1192	1721	1608	372	415	416	1203
Mid-Finland	429	494	518	1122	1235	1139	332	367	341	1040
Northern Finland	372	301	360	726	1033	951	362	351	356	1069
Åland	6	11	15	182	122	105	20	28	29	77
Total	3260	2986	3348	7368	8200	8258	2180	2313	2250	6743

Income differences between regions are considered in the income per capita form as in most convergence analyses. In studying income differences within regions we also apply the income per consumption unit form by applying Atkinson's equivalence scale.

In order to clarify how these key concepts are derived, we note that each household is weighted by the number of individuals belonging to the household. This is equivalent to considering a distribution in which each household is represented by the number of individuals with the same level of income. Of course, in order to obtain population level estimates, we also need to use the sampling weights.

Incomes are adjusted by the number of equivalent household members. For example, if  $y_i$  denotes disposable income of household  $i$ , then the adjusted income of member  $j$  of household  $i$  is calculated as follows:

$$(1) \quad y_{ij} = \frac{y_i}{n_i^e}$$

where  $n_i$  is the number of members in household  $i$  and  $e$  is the equivalence elasticity which characterises the amount of scale economies in needs at the household level. In the case  $e = 1$ , the adjusted income of each household is expressed as income per capita. The sum over the members' incomes gives exactly the income of the household.

If  $e$  in (1) is smaller than unity, this implies the existence of economies of scale in households' needs: an additional household member creates a need for a less than proportionate increase in the household's aggregate income in order to maintain the original level of welfare. We call the case of  $e = 0.5$  "the Atkinson's scale" which means that each household's aggregate income is divided by the square

root of the number of household members. When  $e \neq 1$  adjusted incomes do not add up to (unadjusted) household income.

All the numbers in figures and tables of this paper which are based on the Household Survey, are estimates weighted to the population level. The weights are formed by multiplying the number of household members and the sampling weight of each household.<sup>5</sup>

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<sup>5</sup> Non-response rate was 22 per cent in 1966 and over 30 per cent in 1971 and 1976. After the bookkeeping period was shortened to two weeks in 1981, the rate has stayed below 30 per cent (c.f. Suoniemi and Sullström 1995). Information concerning the non-response rate of the latest Household Survey 1994-96 is not yet available.

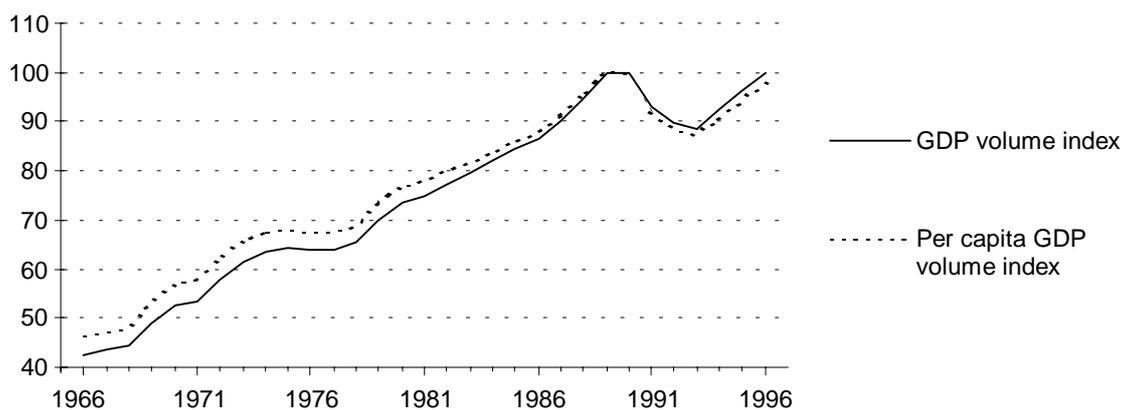
### 3. On economic and demographic development in Finland, 1966-1996

Because we study the evolution of regional income differences during quite a long period of time, it is useful to take a quick look on macro economic and demographic development in Finland. In this connection we also see what was the economic situation in the years when Household Surveys were carried out.

Figure 2 points out that GDP and GDP per capita have doubled during the thirty years under consideration. During the same period the population of Finland has grown from 4,6 million to 5,1 million people. Although GDP has grown substantially during 1966-1996, the annual growth rate has by no means been steady. On the contrary, Finland has been a rather volatile country in West European perspective. The Finnish case can be seen in Figure 3 which presents annual GDP growth rates and unemployment rates.

Especially until the end of 1980s GDP growth has been rapid, and as a trend Finland has been catching up the average OECD-Europe level of GDP per capita from below. As for major changes in economic development, after the first oil crisis, in the middle of the 1970s Finland experienced a recession during which growth was weak. Far greater shocks were experienced more recently. The Boom at the end of 1980s was followed by the Great Depression of the early 1990s. During 1990-1993 GDP volume dropped by nearly 12 per cent from the 1990 level.

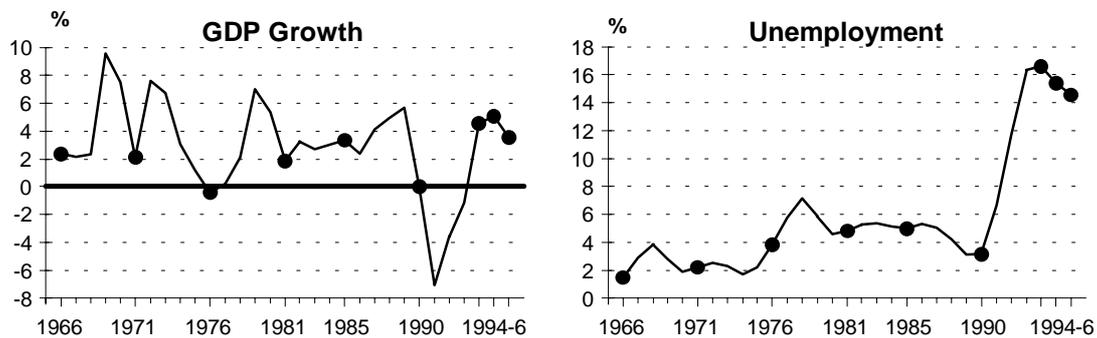
Figure 2 GDP volume indices 1966-1996, (1990=100)



In addition to the above mentioned recessions, the GDP growth rates have varied a lot with the exception of 1980s when many people falsely thought that the business cycle had been tamed.

One noteworthy observation for subsequent analysis becomes evident from Figure 3 where the Household Surveys are indicated by dots. It seems that by accident these surveys have most often been carried out during recession years or a downturn in business cycle (1990). One exception is the year 1985 which was the end of an unusually smooth growth, and was followed by the Boom of late 1980s. Also the latest Household Survey years 1994-96 included in this study are the years of positive (and rapid) growth after the Depression of early 1990s, but at the same time they are years of mass unemployment.

Figure 3 GDP growth and unemployment in Finland, 1966-1996



• Household Survey

Before turning attention to regional demographic developments within Finland it is worth pointing out that Finland has been part of free labour market among the Nordic countries since 1957. In 1961 Finland became an associated member of EFTA, and a full member in 1986. More recently, Finland became a part of European Single Market, first due to EEA agreement in 1994, and since 1995 as a member of EU. In late 1960s and early 1970s when Finland urbanised at an exceptionally fast rate some 400 000 Finns emigrated, mostly to Sweden where employment opportunities, income level and availability of housing were key pull factors of migration. There was also some net emigration in mid 1970s. Thereafter, the situation has been rather balanced or there has been some net immigration. Somewhat surprisingly, the Depression of early 1990s did not lead to emigration, rather there has been some net immigration from Russia as Finno-Ugrian (especially Inkeri) people were granted Finnish citizenship.

In different parts of Finland regional income differences are affected by population development, migration, productivity differences and employment opportunities. The creation of high wage jobs in some region pulls people from other regions and causes inter regional migration. Unemployment and low income level act as "pushing factors" in declining regions. Migration, especially the mobility of workforce, is affected by income differences which, in addition to market forces, are also affected by the functioning of the Welfare State. On the

other hand, migration equalises regional income differences by reducing regional imbalances in labour markets. Along with migration, natality (birth rate) and mortality (death rate), both of which can vary substantially across regions, have effect on population development.

In order to get an idea on demographic development we present estimates from the Household Survey concerning the number of households and household members in major (NUTS2) regions. It should be noted that households are not registered by Statistics Finland.

Figure 4 illustrates some key indicators of demographic development during the time period 1966-96, under consideration in this study. The respective numerical information can be found in Table A1a of Appendix 1. Figure 4 shows that the number of households has increased in all regions. The growth has been fastest in the Uusimaa region comprising the Capital City Helsinki with its surroundings, and in Southern Finland. The number of household members (population) has increased substantially in the Uusimaa region. In other regions it has remained the same or it has decreased, as is the case of Eastern Finland.

Figure 4 also reveals that the average household size has decreased in all regions. The change has been fastest in regions where household size has been largest in the mid 1960s, i.e. there has been a clear convergence of household sizes across regions.

The number of household members derived from Household Surveys is a rough estimate on total population because it excludes people living in institutions, and thus underestimates total population. In Figure A1 of Appendix 1 we present data on total population based on population statistics<sup>6</sup> and find out that our estimate on the number of household members looks very reasonable, except in the years 1966 and 1971 when it seems to be inaccurate.

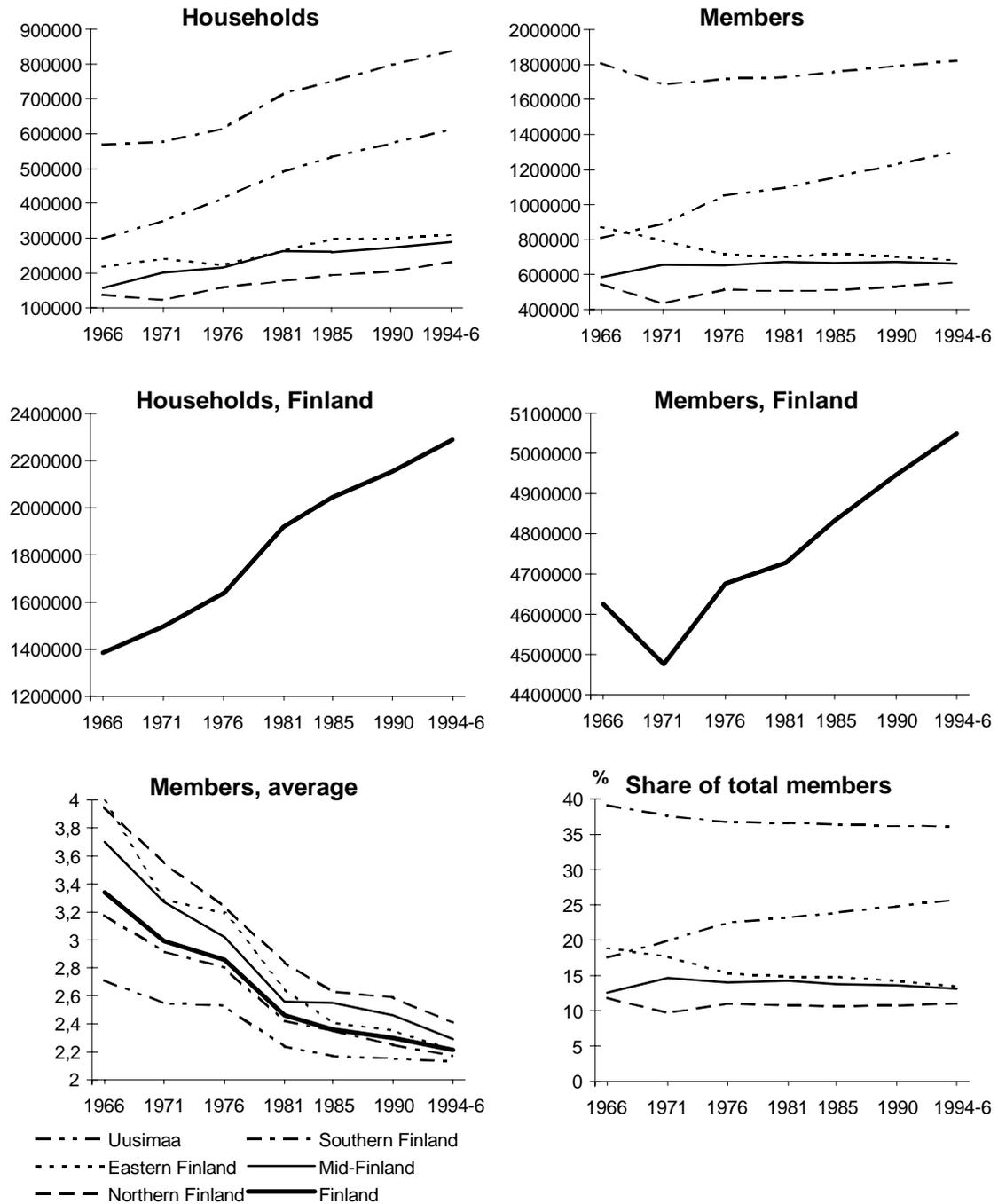
The average age of the household head has increased in all the main regions except Uusimaa (c.f. Table A1b of Appendix 1). The increase is most noticeable in Mid-Finland and Northern Finland which are areas of declining population shares inside Finland. The youth and families with young heads are those who have the highest propensity to migrate. This is one explanation to the increasing average age of households heads in Mid-Finland and Northern Finland. Those who migrate are also more educated (c.f. Table A1c of Appendix 1). If we consider the shares of the household heads who have at least upper secondary education, the changes in the shares are greatest in Southern Finland and lowest in Mid-Finland. In Uusimaa the change is quite the same as in Eastern Finland. However, the levels are highly different. In 1966 only Uusimaa is above the level

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<sup>6</sup> The data announces total population on the 31<sup>st</sup> of December each year.

of Finland and the situation is the same in 1996 but with a higher share of more educated. Also in education there is some convergence which is related to i.a. migration inside the country.

Figure 4 Demographic development in Finland, 1966-1996



## 4. Some background information

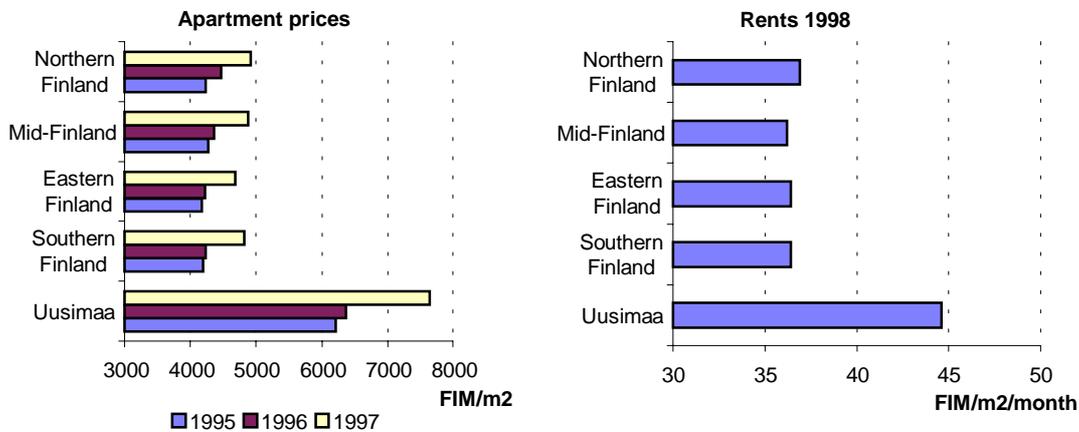
In the following chapter our main aim is to examine income differences between regions relative to national average by applying four income concepts. These results on relative income differences are based on incomes per capita, the standard transformation in convergence studies. Before presenting these results we point out that we have not deflated incomes by regional price indices in order to approximate real income differences across regions. Despite of this, we shall take a short look at the main source of regional price differences, namely housing prices. Thereafter, we describe how our four real income series deflated by cost of living index (CLI) have evolved over time at national and regional level. We also present how regional differences look if we use the commonly used value added per capita as the measuring rod. All this is background information for our subsequent results on regional income differences during 1966-96.

### 4.1 On price differences between regions

Systematic information on regional price differences in Finland is rather limited and most of it concerns differences between Helsinki region and the rest of Finland. According to Susiluoto (1993) there is no major difference in the pattern of the changes in general price level in Helsinki region and the rest of the country, i.e. inflation and deflation proceed uniformly throughout Finland. There is, however, a difference in price levels, and here it is useful to distinguish between housing and non-housing consumption. As for non-housing, Helsinki has been some four percent more expensive than the rest of the country, and this difference has remained rather stable according to Hyypiä and Tuominen (1994). As for housing, e.g. in 1990 rents in Helsinki were some 15 per cent higher than elsewhere. User cost of owner-occupied housing was respectively 34 per cent higher than in the rest of the country.

As the main difference in regional price developments is related to housing, we shall compare NUTS2 regions (excluding Åland) in this respect. As Figure 5 illustrates, housing is considerably more expensive in the Uusimaa region, surrounding Helsinki, than in the other parts of the country. Average apartment

Figure 5 Average (nominal) apartment prices and rents in the major regions of Finland



Source: Statistics Finland

prices<sup>7</sup> and average rents (both per square meter) are higher in the Uusimaa region than elsewhere in Finland. The differences between other regions are minor, and somewhat surprisingly, Northern Finland turns out to be slightly more expensive than Southern Finland in this comparison concerning recent year(s).

Figure A2 in Appendix 2 sheds light on the evolution of average apartment prices<sup>8</sup> in the Helsinki Metropolitan Area (HMA) and in Finland as a whole. Housing statistics reveal, that the Helsinki Metropolitan Area is the most expensive area in the Uusimaa region what comes to housing. In addition to Helsinki, the HMA comprises the municipalities of Espoo, Kauniainen and Vantaa, all of which surround the city of Helsinki. Figure A3 shows the price difference between HMA and Finland as a whole. A steep rise in price difference in 1980 is mainly explained by an increased number of municipalities included in the statistics. Before year 1980, in addition to the HMA, the statistics included only seven large cities. Thus it is obvious that the price difference between the HMA and Finland as a whole increased when smaller cities and rural municipalities were included.

In subsequent analysis, we shall ignore the regional differences in price developments. The main emphasis in comparing regions will be in relative income differences. However, before that we shall consider how real per capita incomes have changed when deflating nominal figures by national cost of living index.

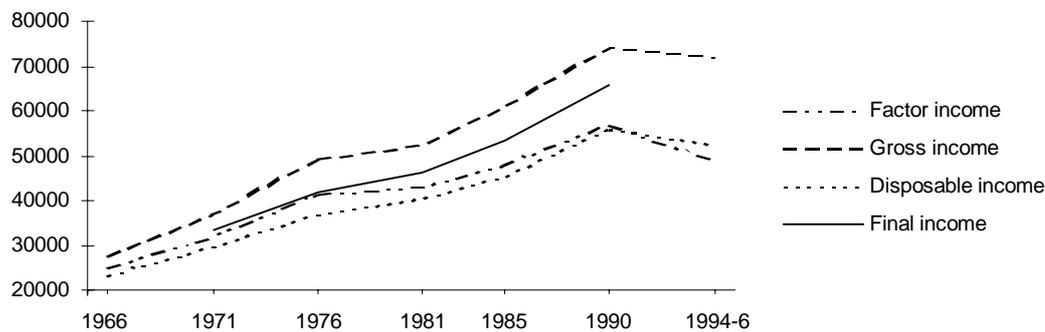
<sup>7</sup> Apartment prices are based on the tax authorities' asset transfer tax and stamp duty data.

<sup>8</sup> Statistics include only sales of old housing company units ("condominiums") in blocks of flats by real estate brokers.

## 4.2 On real income developments

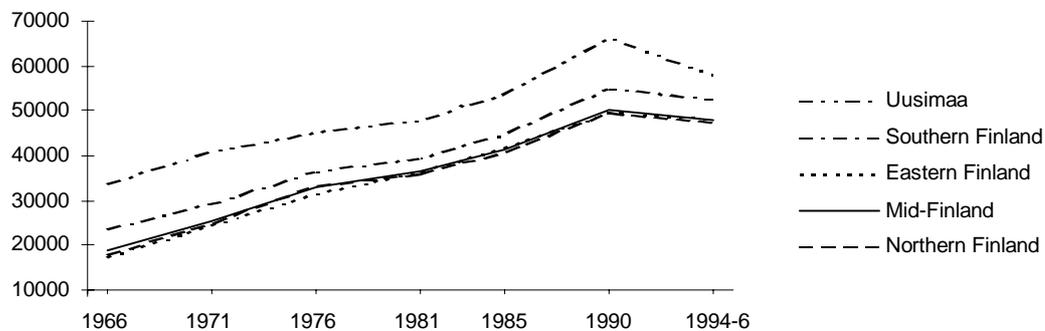
When household survey data is used to consider national developments of real per capita income with our four income concepts, we get the following picture (c.f. Figure 6a). Irrespective of income concept used, income level in real terms has increased substantially until the year 1990. Thereafter, the depth of the depression of early 1990s is very clear. For the first time during the Post War period in Finland real incomes per capita decreased.

*Figure 6a* Estimated real per capita incomes in Finland, Finnish marks per year (deflated by cost of living index to 1990 price level)



To illustrate regional real income developments, in Figure 6b we consider real disposable income per capita paths by region. In Uusimaa this measure of income has exceeded the respective level of other regions, but the absolute difference has decreased over time. Furthermore, the decline from 1990 to 1994-96 is greatest in Uusimaa.

*Figure 6b* Estimated real per capita disposable income by region, Finnish marks per year (deflated by cost of living index to 1990 price level)



Respective regional development of real incomes for all four income concepts is presented numerically in Table A2 of Appendix 2. There, in addition to

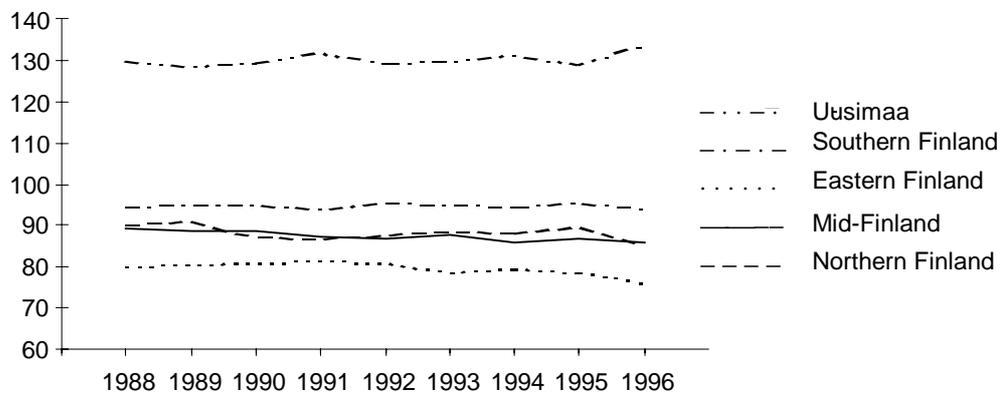
considering the last Household Survey results as an average over 1994-96, we also present the annual information. It reveals that from 1966 to 1990 real income growth was continuous everywhere irrespective of income concept used. After three recession years in 1994 all three available income concepts had lower values relative to those in 1990 in all regions. Thereafter, the direction of real incomes varies by concept and region. For instance in 1995, the real factor, gross and disposable incomes in Uusimaa region continued to decline, increasing only in 1996. Elsewhere (excluding Åland, here), there was continuous growth or a minor drop in 1995, and an increase in 1996.

### **4.3 On regional value added per capita during 1988-96**

Instead of analysing household incomes regionally with micro data, the common approach is to study regional economic differences with output measures. In regional context, the analogue of GDP per capita in cross-country studies, is to consider differences in value added per capita. This is a different concept than our household income concepts. For instance, the closest counterpart to value added is households' factor income which includes all market type income irrespective of whether it comes from the region or outside the region. On the other hand, unlike (gross) value added which includes depreciation investment, households' factor income is a net concept.

Figure 7 illustrates the annual evolution of regional value added per capita in the major (NUTS2) regions relative to the respective national average during 1988-96. During this period the relative differences in value added per capita have remained almost the same both in the boom of late 1980s, during the deep economic crisis in early 1990s, and the period of fast growth since 1994. As for regional differences, value added per capita is about 30 per cent higher than the national average in Uusimaa, the region surrounding Helsinki. All the other regions are below the national average, Southern Finland by some 5 per cent, Mid and Northern Finland by some 10 per cent and Eastern Finland by some 20 per cent.

Figure 7 *Regional value added per capita 1988-1996 (Finland=100)*



Source: Statistics Finland

Later, after presenting results concerning regional household incomes per capita relative to national average, we shall compare them to the picture received on the basis of the value added concept. This comparison can only be done concerning the years 1990, and 1994-96 as these are the only years in which information from both sources is available.

## 5. Relative income differences between regions

Household Survey data from the years 1966, 1971, 1976, 1981, 1986, 1990, and 1994-96 will be used in this section to consider regional differences in per capita incomes applying four income concepts: factor income, gross income, disposable income and final income.

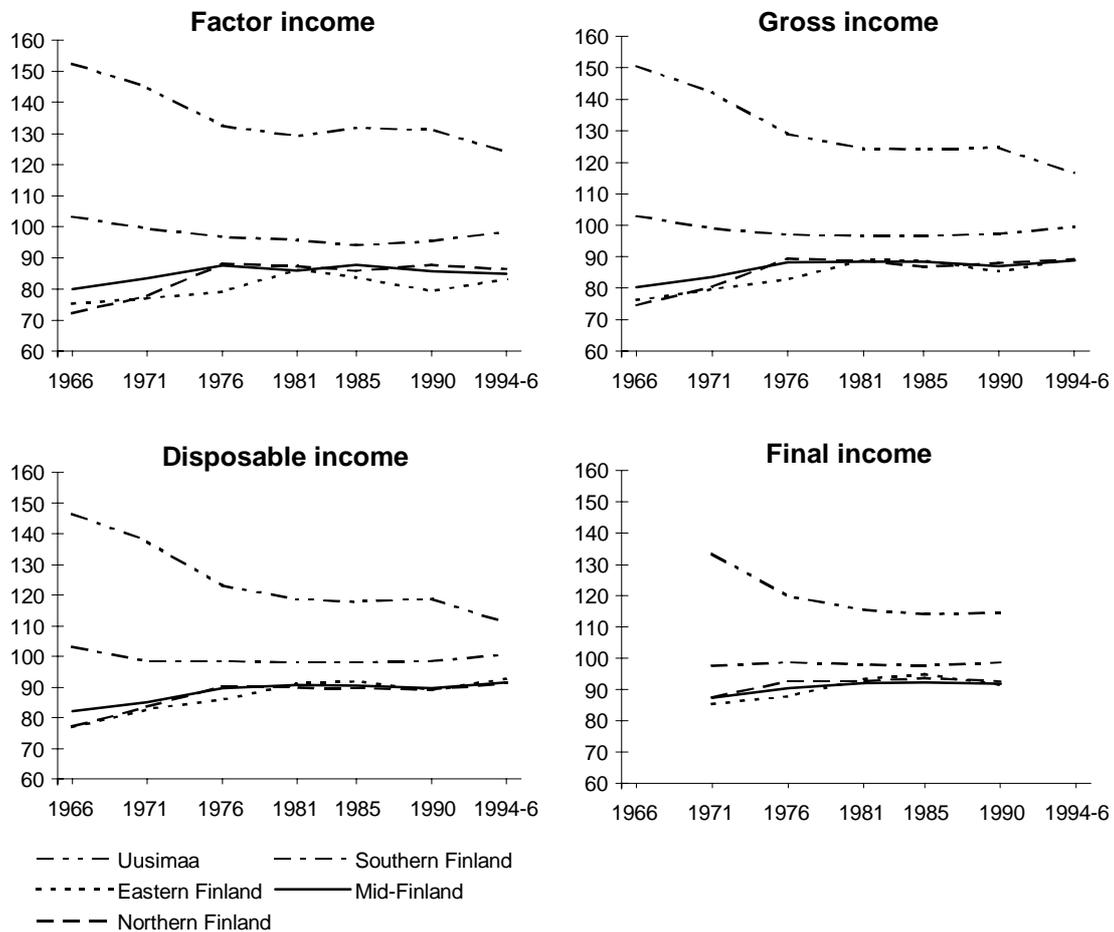
We shall present our main results on regional income differences in this chapter by considering the evolution of regional per capita incomes relative to the national average (= 100). In the main text, we present our results in figures, and the respective numerical information can be found in Appendix 3. As for the latest Household Survey that was stretched over three years, we present average numbers for 1994-96 in the figures.<sup>9</sup> In Appendix 3, we also have annual information for these years.

We shall look at regional differences from two different points of view. Figure 8 illustrates the evolution of regional income differences considering each income concept separately. Thus it is possible to observe whether there has been convergence of regional income levels over time when different income concepts are applied. Thereafter, regions are examined one by one (Figure 9) in order to get an idea of how the Welfare State affects relative income differences in each region by taxation, transfers and the provision of public services.

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<sup>9</sup> When calculating the means for 1994-96, the income data of 1994, 1995 and 1996 were first changed to the same base year prices in order to make the values in different years comparable.

Figure 8 *Per capita factor income, gross income, disposable income and final income in major regions (Finland = 100)*



Referring to Figure 8, irrespective of income concept used and the year of observation, per capita income is clearly at its highest level in the Uusimaa region (surrounding Helsinki). In Southern Finland the income level is close to the national average (= 100). In Eastern Finland, Mid-Finland and Northern Finland the income level is below the national average.

Regardless of income concept applied there has been substantial regional convergence of relative income levels over time. Convergence was especially clear during the first ten years under study, namely from 1966 to 1976. Thereafter, relative income differences remained largely the same until 1990. During our last years of consideration 1994-96, first years of economic growth after three years with falling GDP, there are major changes in relative income levels. In the Uusimaa region relative income level has declined substantially in terms of all income concepts available, whereas the opposite tendency is prevalent in Southern and Eastern Finland. In Mid-Finland and Northern Finland

the relative position has remained much the same. The change in regional (relative) income levels from 1990 to 1994-96 is somewhat puzzling especially concerning Uusimaa where (factor, gross and disposable) income levels relative to the national average have declined. A closer examination of annual incomes during 1994-96 in Appendix 3 (Table A4) indicates that unlike in other regions, in Uusimaa there is a drop in all income concepts per capita from 1994 to 1995, and a partial return to the 1994 level in 1996.

In this connection, we make a comparison to Figure 7 where we had results based on regional value added per capita and note that there were only minor changes in the relative position of Uusimaa during 1990s or the whole period 1988-96. There is, however, a minor drop in the relative position of Uusimaa from 1994 to 1995, and then an increase again here, too.

A numerical comparison of value added per capita and its closest counterpart, factor income per capita, in 1990 and 1994-96 is presented in Table 2. In 1990 the two figures are at very similar level in all regions, the greatest difference being three percentage points in Mid-Finland. During 1994-96 the differences are greater. In terms of value added per capita Uusimaa is about seven percentage points above factor income per capita. In Eastern Finland value added per capita is relatively greater in 1990 than factor income, but in 1994-96 the reverse is true.

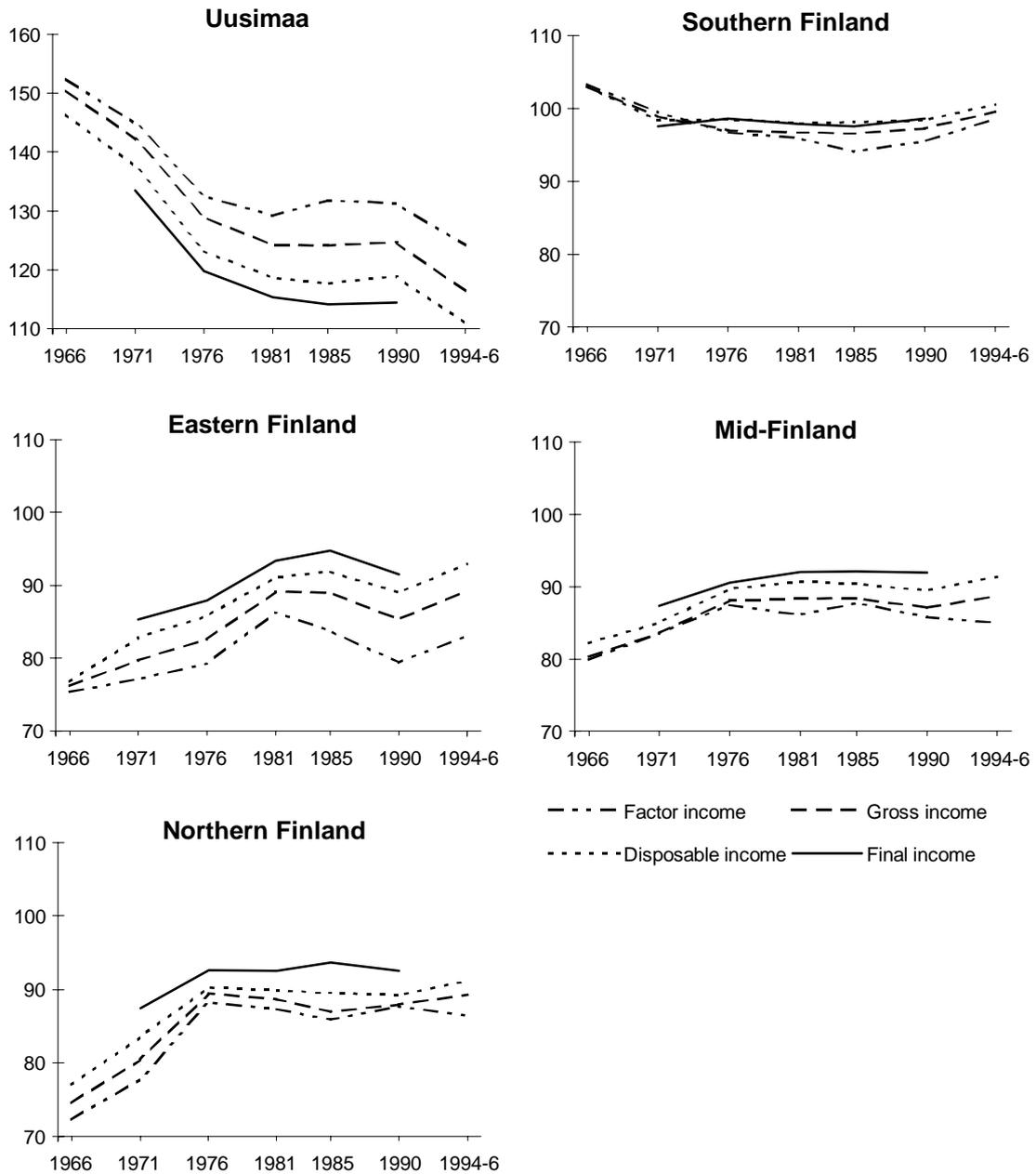
*Table 2 Per capita value added<sup>1)</sup> and factor income<sup>2)</sup> by major region in 1990 and 1994-96 (Finland = 100)*

Year	1990	1990	1994-96	1994-96
Concept	Value added	Factor income	Value added	Factor income
Major region				
Uusimaa	129.7	131.3	131.4	124.2
Southern Finland	94.9	95.5	94.7	98.6
Eastern Finland	81.2	79.4	78.2	83.1
Mid-Finland	88.7	85.8	86.2	85.0
Northern Finland	87.1	87.7	87.7	86.4
Finland	100.0	100.0	100.0	100.0

<sup>1)</sup> National Accounts <sup>2)</sup> Household Survey 1994-96

Next, we shall look at the same basic results on relative income differences as in Figure 8 but now from the view-point of regions. Figure 9 illustrates clearly how The Welfare State equalises income differences across regions. Income transfers, direct taxation and subsidised public services have a clear levelling effect on relative income differences in all other regions but Southern Finland which is close to national average in all cases.

Figure 9 *Per capita factor income, gross income, disposable income and final income by major region (Finland = 100)*



The Uusimaa region converges towards the national average from above as we proceed from factor income to gross income by adding public transfers. An additional move in each year is made when we subtract direct taxes from gross income and attain disposable income. Publicly offered services further contribute to the convergence of Uusimaa as the line describing final income is closest to the national average (=100 for each income concept).

In Eastern Finland, Mid-Finland and Northern Finland the Welfare State mechanisms result in a symmetric convergence from below the national average. Relative factor incomes are furthest away from national average and final incomes are closest to them, respectively.

To summarise, there has been clear regional convergence in per capita income levels in Finland. Convergence is clearest in the period under review when taxation and income transfer systems as well as the effect of public services are taken into account. In general it can be said that regional differences in per capita income are rather low today in Finland. Although there is much room for additional study and some puzzling features in our results, it also seems that regional differences in per capita income did not at least increase during the period 1994-96 following a three years' decline in GDP.

## 6. Distribution of income within regions

International comparisons of income inequality indicate that Finland does not differ very much from other countries when the distribution of factor income is considered. However, together with Sweden, Finland has the most even distribution of disposable income (see e.g. Atkinson et al. 1995). In this chapter we shall make similar comparisons among major regions in Finland. This is done, as in most of the international literature, in terms of Gini-coefficients based on two different household income transformations, namely the per capita and the square root scales (see chapter 2). As above, we shall consider four alternative income concepts: factor income, gross income, disposable income and final income. As mentioned earlier, information on final income is available only from 1971 to 1990 whereas for the other three concepts, we have results from 1966 to 1994-96.

Results on the evolution of regional Gini-coefficients in per cent form, and respective national Gini-coefficients, are displayed in Figures 10-13. The corresponding numerical information can be found from Appendix 4.

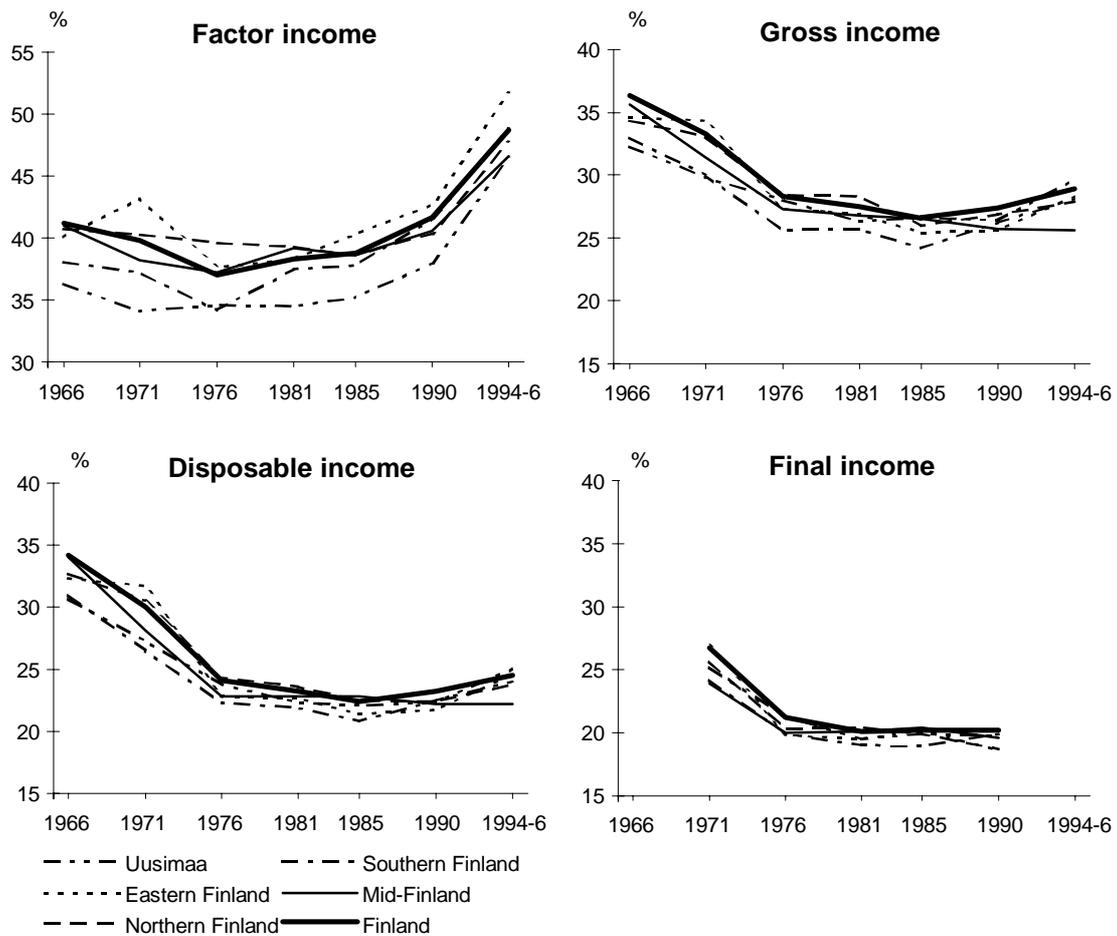
Figures 10 and 11 illustrate the evolution of regional Gini-coefficients based on per capita and the square root equivalence scales, respectively. As can be seen the two figures look very similar. Thus, the results remain qualitatively much the same whether we assume economies of scale in the household needs or not. The main difference between the two figures is in the level of the Gini-coefficients.

After a slight decline, the Gini-coefficients based on factor income have increased since mid-1970s, especially from 1985 on, such that the greatest increase is from 1990 to 1994-96. This is not surprising remembering that the last period follows the deep economic crisis. What is much more surprising is the behaviour of Gini-coefficients based on gross income, disposable income and final income. During the time period considered, they all have decreased from 1966 to 1976, and thereafter there is no major change in their level. This is unexpectedly true also from 1990 to 1994-96 suggesting that the economic crisis in the early 1990s left income distribution relatively unaffected.

In this connection we refer to the results of Lehtinen (1998) and Uusitalo (1997) who have studied income inequality with annually available income distribution statistics especially in the economic crisis of early 1990s covering years 1991-93, too. Their results based on Gini-coefficients and income shares of top and bottom deciles indicate that there were almost no changes at all in these indicators for disposable income after 1990. Thus market processes and the mechanisms of the Welfare State together did not affect income inequality during the depression, at least when evaluated by conventional measures, which is surprising.

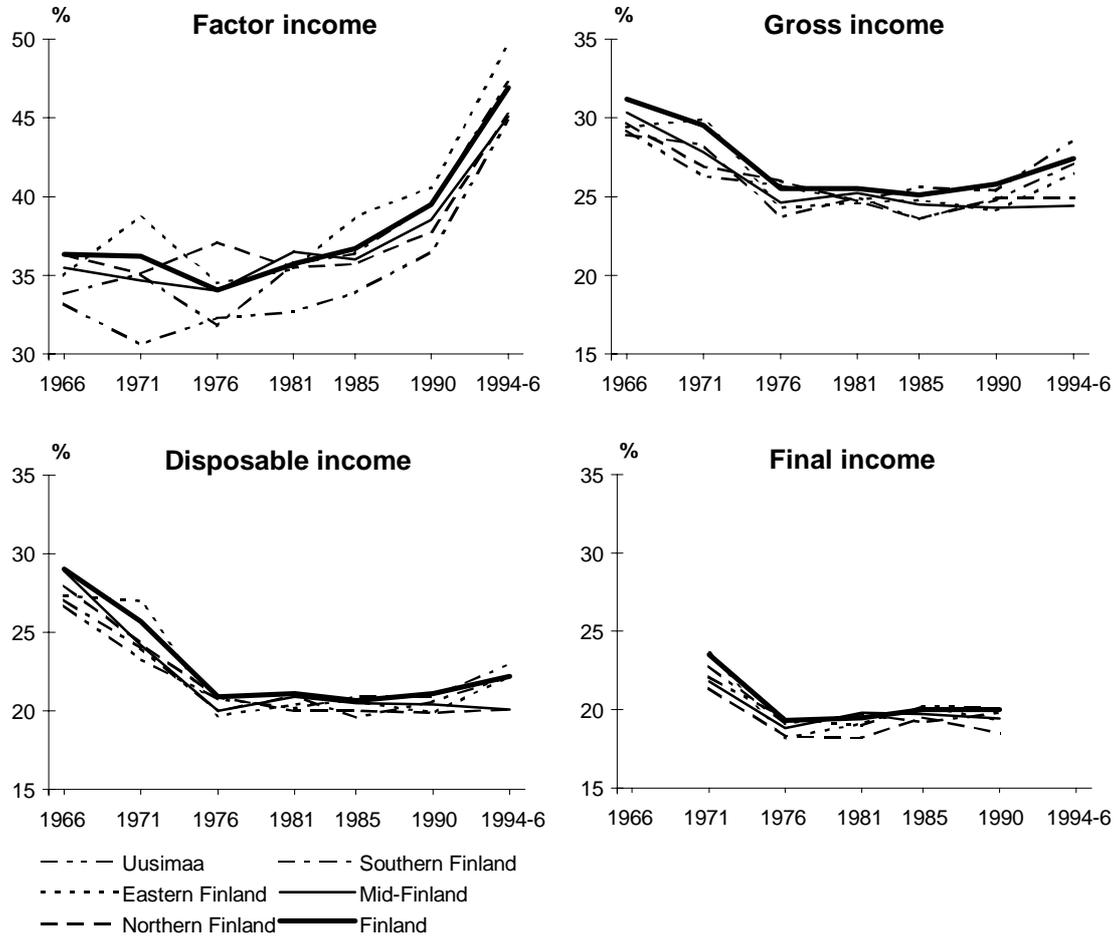
The general level and development of our regional Gini-coefficients is remarkably similar to the national Gini-coefficients. The most noticeable regional differences are related to factor income coefficients, and the smallest to final income coefficients respectively. The basic picture is much the same for per capita scale and Atkinson's scale.

*Figure 10 Regional Gini-coefficients based on per capita factor income, gross income, disposable income and final income*



The maximum difference between the highest and the lowest regional Gini-coefficient in any year is less than 9 per cent for any income concept during all the years considered. For disposable income this maximum range is less than 4 per cent in any year during 1966-1996.

Figure 11 *Regional Gini-coefficients based on square root equivalence scale factor income, gross income, disposable income and final income*



In Figures 12 and 13 we present basically the same results on Gini-coefficients but here we consider their values by region in order to see how the Welfare State redistributes income within regions. In all regions income inequality is at its peak when factor income is considered. Public transfer systems have a significant equalising effect on income differences within regions, as the Gini-coefficients based on gross income are considerably smaller than those based on factor income. Also direct taxation and public services contribute to the equalisation of income as Gini-coefficients for disposable and final incomes are lower than for gross income, but they have a smaller effect on the coefficients than the public transfer systems.

Figure 12 *Gini-coefficients based on per capita factor income, gross income, disposable income and final income by major region*

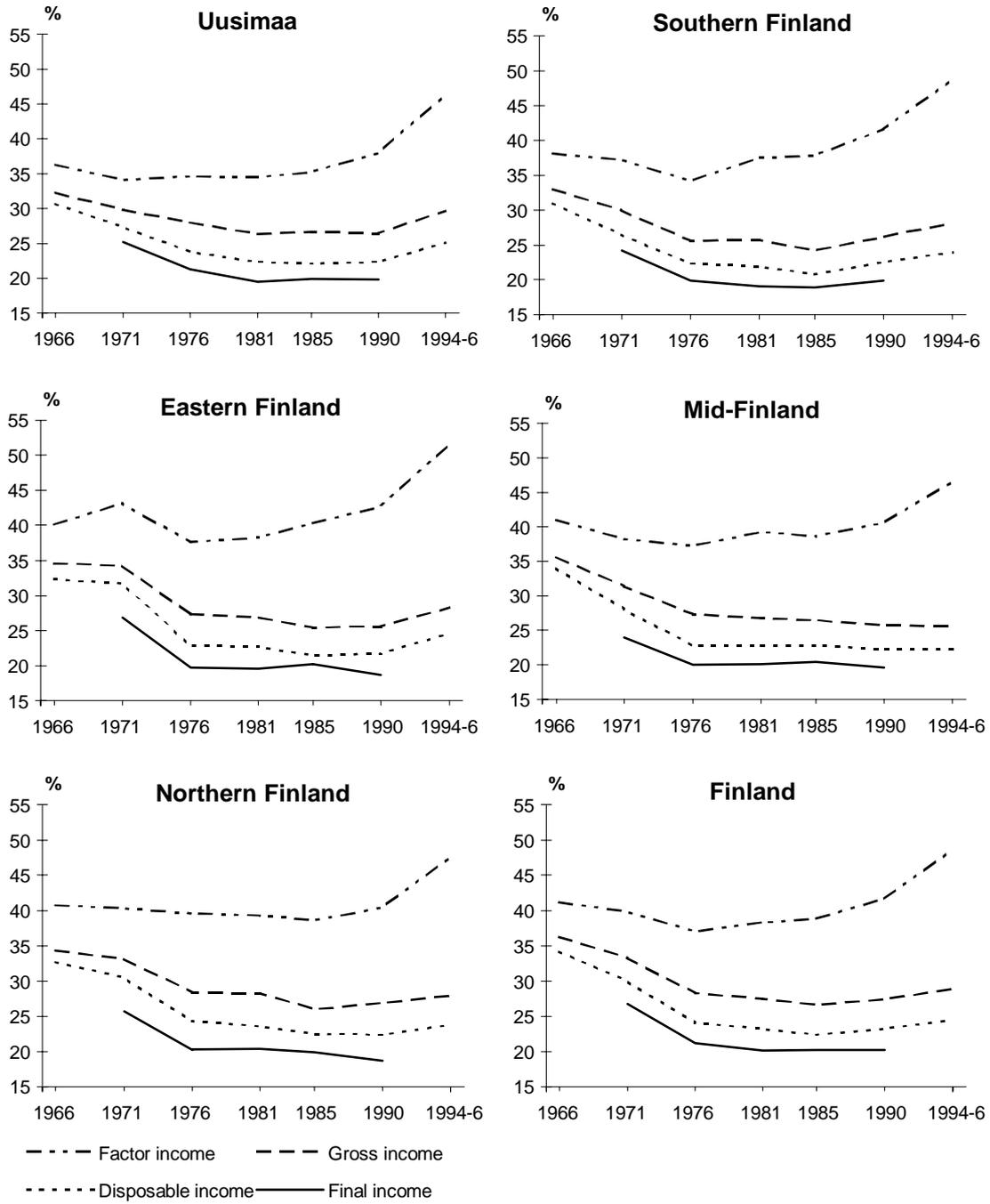
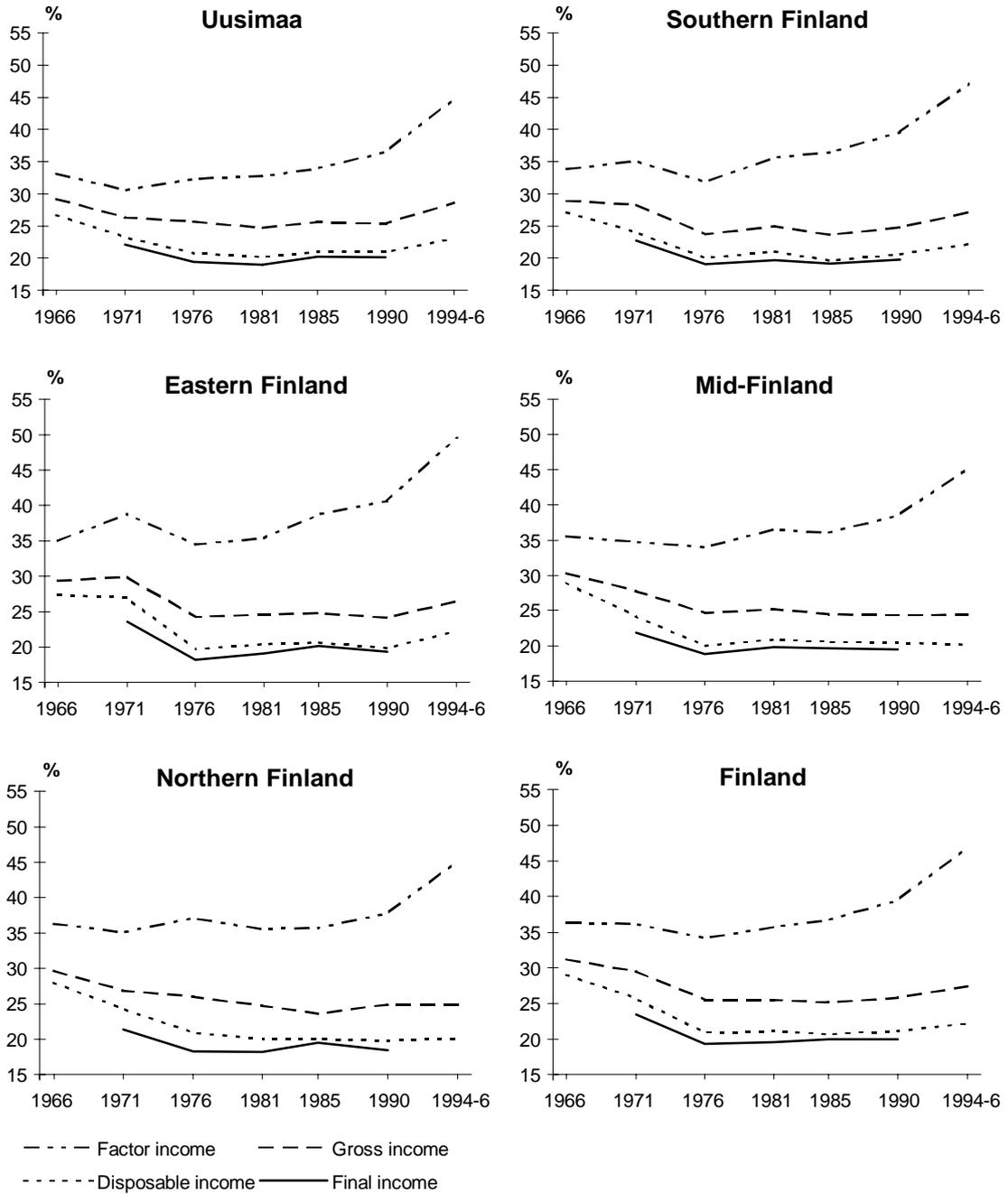


Figure 13 *Gini-coefficients based on square root equivalence scale factor income, gross income, disposable income and final income by major region*



## 7. A decomposition of regional Gini-coefficients by income components

The Gini-coefficient is a measure that summarises income inequality from an income distribution function. In the previous section, we presented estimated Gini-coefficients for each region and the whole country. In this connection, to highlight the role of the Welfare State, we also paid attention to how movement from one income concept to another seemed to affect our measure of inequality. However, to make more precise judgements about the importance of different income components on total inequality, we need to decompose the total outcome into the contributions of relevant components. In the following we shall present results on how proportional changes in regional income components affect inequality both at regional and national level. In this connection we choose disposable income and related Gini-coefficients to be the bench mark and calculate inequality elasticities on this basis. Here our results are based on the Atkinson's equivalence scale, i.e. income per square root of the number of household members.

### 7.1 Income components and measurement of their contribution on inequality

For the sake of decomposition, we shall consider disposable income which can be expressed as a sum of its four components as follows:

$$(2) \text{ Disposable income} = \text{Earned income} + \text{Unearned income} \\ + \text{Income transfers} - \text{Direct taxes}$$

Earned income consist of money wages, salaries and compensations in kind, deducting work expenses related to these forms of earnings. Unearned income, i.e. all other factor income includes entrepreneurial incomes from agriculture, forestry and firms, and property incomes. Income transfers include pensions, both national and occupational old age, disability and unemployment pensions and social contributions. Direct taxes consist of state and municipal income taxes and different obligatory payments.

Inequality of disposable income, measured by the Gini-coefficient, can be decomposed to be the sum of the inequality contributions of weighted income type components. Here, the weights are ratios of income components to disposable income, and the inequality contributions are based on the conditional Gini-inequality of the component, given by the units' rank order in disposable income, i.e by the coefficient of concentration (e.g. Suoniemi 1998). Its sign

shows whether or not the income component is income equalising or disequalising relative to bench mark inequality which here is based on the distribution of disposable income. A positive value indicates an increase in inequality and a negative value a respective decrease, assuming that the weight (component income/disposable income) is positive. If the weight (like for taxes) is negative, the opposite results follow.

If  $G(y)$  indicates the Gini-coefficient based on disposable income  $y$  and  $C(y_k, y)$  is the concentration coefficient of its component  $y_k$  ( $k = 1, 2, \dots, K$ ) given the rank order of  $y$ , then the decomposition rule for total inequality is

$$(3) \quad G(y) = \sum_k \frac{\mu_k}{\mu_y} C(y_k, y), \quad k = 1, 2, \dots, K$$

where  $\mu_k$  is the mean value of income component  $k$  and  $\mu_y$  the mean of disposable income.<sup>10</sup> We see that the elasticity of total inequality with respect to the mean of income component  $\mu_k$  takes the form

$$(4) \quad \frac{\partial G(y)}{\partial \mu_k} \frac{\mu_k}{G(y)} = \frac{\mu_k}{\mu_y} \left( \frac{C(y_k, y)}{G(y)} - 1 \right)$$

This formula shows, that if  $C(y_k, y)$  is greater (smaller) than  $G(y)$ , then inequality measured by the Gini-coefficient increases (decreases) due to income component  $k$ , if its ratio to disposable income is positive (i.e.  $\mu_k/\mu_y > 0$ ). The magnitude of the change in inequality thus also depends on the importance of component  $k$  in the disposable income.

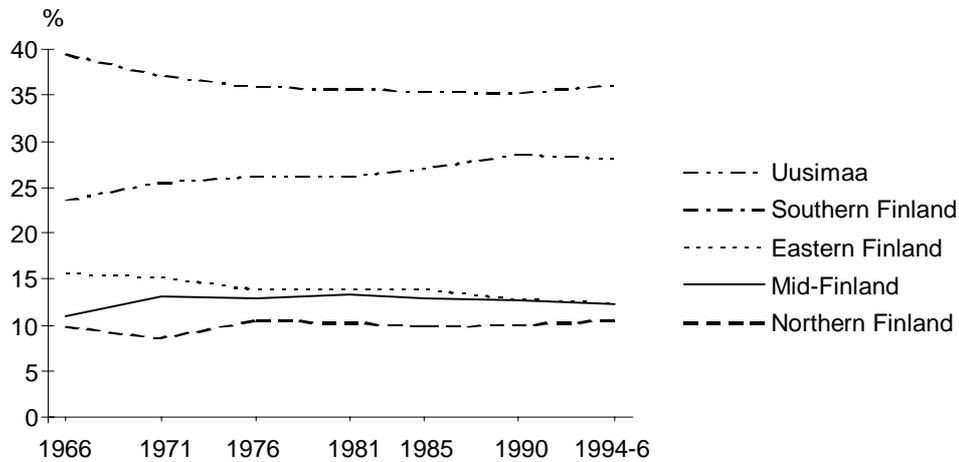
Formula (4) can be applied as such to calculate inequality elasticities or income components at national level with national income components, and at regional level. In the latter case  $G(y)$ ,  $C(y_k, y)$  and  $\mu_k/\mu_y$  are calculated regionally. These results at national and regional level will be presented in section 7.2.

In addition to these alternatives, we can consider how a proportional change of an income component in a certain region affects inequality at national level. In this case we use an approximation where the regional inequality elasticity is simply weighted by the ratio of regional to national disposable income (c.f. Figure 14). These results will only be presented in Appendix 5 (Table A11).

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<sup>10</sup> The mean values, here, are income terms transformed by Atkinson's equivalence scale.

Figure 14 Regional shares from total disposable income in Finland



Before considering results on inequality elasticities, we shall take a look at the regional shares of aggregate disposable income and describe the structure of disposable income.

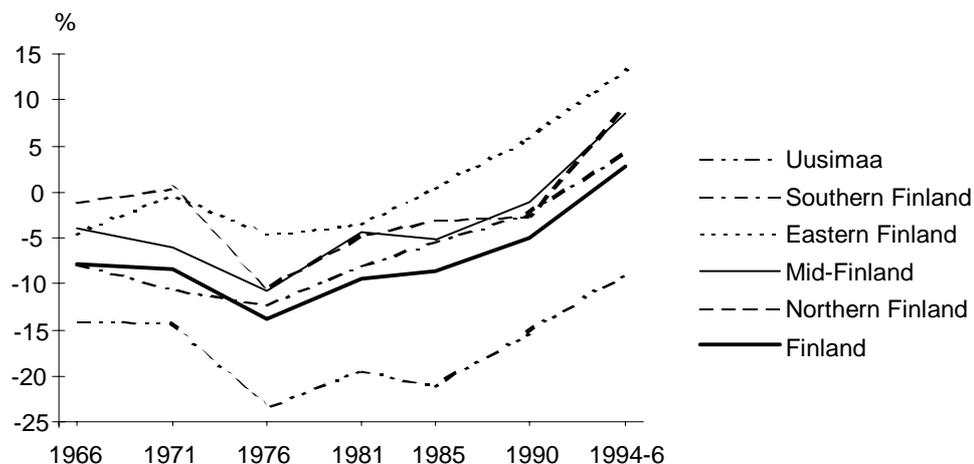
Uusimaa and Mid-Finland have increased and Southern Finland and Eastern Finland have decreased their shares from aggregate disposable income in Finland since 1966 (Figure 14). In 1996 Uusimaa and Southern Finland received over 65 per cent of all disposable income in Finland.

Earned income (wages, salaries and the like) is the greatest income component in all the regions (c.f. Appendix 5, Table A8). Its share from regional disposable income is greatest in Uusimaa (over 90 per cent) and smallest in Eastern Finland which is always less than 80 per cent and during 1994-96 less than 65 per cent. The share of other factor incomes from the regional disposable income is greatest in Eastern Finland, Southern and Northern Finland coming next. These shares have declined since 1966 due to the relative decline of agriculture in the economy. This change has been especially noticeable in Eastern, Mid and Northern Finland.

Both transfers to households and direct taxes have increased considerably since 1966. The share of transfers from disposable income in Finland was about 10 per cent in 1966, and in 1996 it was over 40 per cent. The share of the direct taxes increased during the same period from 18 per cent to 38 per cent.

Net transfers which are transfers to households minus direct taxes, are negative during the whole period in Uusimaa (Figure 15 and Appendix 5, Table A7). Southern, Mid and Northern Finland have changed to be recipients of net transfers in the years 1990 and 1994. Eastern Finland has been a net recipient since 1985.

Figure 15 Shares of net transfers from disposable income by major regions



## 7.2 Inequality elasticities of income components

In this section we shall report and comment the estimated inequality elasticities based on equation (4) in section 7.1. They measure the effect of a proportional change in an income component on inequality, measured by the Gini-coefficient. Here, disposable income and related Gini-coefficient is the bench mark from which we measure (proportional) changes. In this connection we present results where income is adjusted by Atkinson's scale.

Inequality elasticities calculated on the basis of equation (4) for each region and the whole country are presented in Table 3. Because of too small sample size, the results for Åland are not presented and commented here as before. Like in previous sections, for the years 1994-96, we shall here only present results based on pooled data. Tables containing also the annual information on the years 1994-96 can be found from Appendix 5.

The results in Table 3 show that, relative to the Gini-coefficient based on disposable income, an increase in earned income increases inequality in all regions and at national level, as its inequality elasticity is always positive. At national level this elasticity has increased monotonically over time, and this trend is rather clear in all regions although the behaviour over time is not always monotonic. This implies that the role of earned income as a source of inequality has increased over time.

Taxes and transfers have systematic negative effects on Gini-coefficients, i.e. they decrease measured inequality. The inequality elasticities for taxes and transfers have increased in absolute terms almost systematically both nationally and in most regions over time, and especially for transfers the highest elasticities are related to 1994-96. This is understandable because these are post recession

years with historically record high unemployment around 15 per cent. Under these circumstances transfers had an important role, but also the incomes of employed increased with fast growth rising them to higher ladders of progressive income taxation.

*Table 3 The elasticity of the Gini-coefficient based on disposable income with respect to the means of various income components*

	1966	1971	1976	1981	1985	1990	1994-6
<b>Uusimaa</b>							
Earned incomes	0.186	0.147	0.276	0.400	0.454	0.461	0.513
Unearned incomes	-0.008	0.021	0.126	0.061	0.060	0.115	0.200
Income transfers	-0.081	-0.037	-0.123	-0.217	-0.234	-0.308	-0.393
Direct taxes	-0.097	-0.132	-0.279	-0.244	-0.280	-0.268	-0.319
<b>Southern Finland</b>							
Earned incomes	0.227	0.351	0.395	0.481	0.478	0.435	0.448
Unearned incomes	-0.034	0.020	0.007	0.062	0.096	0.202	0.282
Income transfers	-0.125	-0.177	-0.201	-0.332	-0.347	-0.413	-0.458
Direct taxes	-0.068	-0.194	-0.201	-0.211	-0.227	-0.224	-0.272
<b>Eastern Finland</b>							
Earned incomes	0.346	0.348	0.399	0.382	0.347	0.461	0.435
Unearned incomes	-0.140	-0.032	0.074	0.122	0.223	0.225	0.282
Income transfers	-0.139	-0.209	-0.251	-0.288	-0.349	-0.448	-0.492
Direct taxes	-0.067	0.107	-0.222	-0.216	-0.221	-0.238	-0.224
<b>Mid-Finland</b>							
Earned incomes	0.153	0.346	0.485	0.497	0.353	0.422	0.486
Unearned incomes	0.007	-0.016	-0.011	0.052	0.147	0.187	0.277
Income transfers	-0.123	-0.177	-0.259	-0.321	-0.280	-0.412	-0.518
Direct taxes	-0.037	-0.154	-0.216	-0.228	-0.220	-0.197	-0.245
<b>Northern Finland</b>							
Earned incomes	0.300	0.302	0.497	0.494	0.419	0.507	0.568
Unearned incomes	-0.073	-0.045	0.027	0.043	0.099	0.140	0.189
Income transfers	-0.168	-0.154	-0.293	-0.280	-0.323	-0.349	-0.472
Direct taxes	-0.058	-0.103	-0.230	-0.257	-0.195	-0.298	-0.286
<b>Finland</b>							
Earned incomes	0.274	0.353	0.445	0.492	0.478	0.491	0.510
Unearned incomes	-0.080	-0.049	0.004	0.034	0.082	0.138	0.234
Income transfers	-0.119	-0.149	-0.208	-0.291	-0.312	-0.375	-0.455
Direct taxes	-0.075	-0.155	-0.241	-0.235	-0.247	-0.254	-0.289

In absolute size the elasticities for transfers are higher than those of direct taxes at the end of the period for all the regions, and for Eastern and Mid-Finland all the time. This implies that the same proportional change in transfers decreases inequality by more than respective change in direct taxes. For instance in 1994-96 at the national level a ten per cent increase in transfers decreases the Gini-coefficient by 4,6 per cent whereas the impact of respective change in direct taxes is only 2,9 per cent. For Uusimaa and Southern Finland the inequality elasticity of taxes is greater than for transfers during 1966-76 and thereafter the opposite

applies. All these results indicate the increasing role of transfer systems for inequality over time.

Here, we also note that if, in addition to direct taxes, we would also take into account indirect taxes which are mildly regressive (Riihelä and Sullström 1996), taxes paid by households (directly and indirectly) would have an even more modest equalising impact on income distribution.

The only income component which has a non-systematic effect on inequality elasticity is unearned income. During 1966 and 1971 it had a negative sign in most of the regions, whereas during 1971-96 with the exception of Mid-Finland in 1976, all the signs are positive. Thus this component which previously decreased income inequality has since early 1980s began to have an opposite effect. This change has probably something to do with the internationally late decline in the role of agriculture in the Finnish economy, and the increase in the share of wage and salary earners in the working population.

To conclude, we refer to Table A11 in Appendix 5 where we have inequality elasticities indicating to what extent a proportional change of an income component in a certain region affects inequality (Gini-coefficient) at national level. They are based on a rough approximation where the regional inequality elasticity is simply weighted by the ratio of regional to national disposable income (c.f. Figure 14). These elasticities can be used e.g. to evaluate the effects of region specific tax and transfer policies (if there were such) on inequality at national level.

## 8. Conclusions

This paper presents new results in two ordinarily somewhat separate but related research areas, namely regional convergence and studies on income distribution. Globalisation and economic integration has increased research interest in income differences between nations and regions, and brought about contributions based on the use of international country or regional data in convergence analysis. Contributions in this area also include national convergence analyses with regional data. On the other hand, there is a vast literature on the theory and measurement of inequality, and related to this, studies on the distribution of income at the micro level.

This study differs from the above mentioned ones in that we shall use Finnish Household Survey data to study both regional income differences and income inequality within regions during 1966-96. Unlike most convergence studies which use supply side measures (GDP or regional value added per capita), we concentrate on the incomes of the household sector. We apply four income concepts (factor, gross, disposable and final income) of which final income is a concept which includes the value of public services assessed on the basis of average production cost. In the analysis of regional income differences we consider income per capita (per household member), a typical choice in convergence studies. In income distribution part, we present results based on two transformations: the per capita and the square root equivalence scales.

Our four income concepts make it possible to consider the role of the Welfare State for regional income differences and their convergence, and study how it affects income distribution within regions of which we know almost nothing in advance. Special interest is related to the last Household Survey which unlike other ones (1966, 1971, 1976, 1981, 1986 and 1990) was stretched over three years 1994-96 and followed the worst recession in Finland in this century. GDP declined cumulatively by some 12 percent during 1990-1993, after which there has been fast economic growth but unemployment has stayed at extraordinarily high level. Our data makes it possible to consider whether income differences between and within regions were clearly affected by the crisis of the early 1990s in Finland.

Our study is also of interest from the view point of evaluating regional policies from households' viewpoint. Our regional division corresponds to NUTS<sup>11</sup>-level areas in Finland, a regionalisation applied in EU's regional policies. In addition

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<sup>11</sup> NUTS (Nomenclature des Unités Territoriales Statistiques) is a regional classification system of the European Union, which is used to compile all common regional statistics of the EU. The NUTS classification is also used as the classification system in the regional policies of the EU.

to income differences, we also present some results on regional demographic development.

Our results on income differences between and within regions, i.e. convergence and inequality, can be summarised as follows. There has been clear regional convergence in per capita income levels in Finland during 1966-96. Regional income differences decreased especially from 1966 to 1976 after which there has been either no further or minor convergence depending on the income concept considered. Convergence is clearest when taxation and income transfer systems as well as the effect of public services are taken into account, i.e. when disposable income or final income is considered. Regionally convergence has meant that the relative incomes in Uusimaa, surrounding Helsinki, has declined towards national average from above, and Mid-Finland and Northern Finland have improved their relative position from below national average. Also Eastern Finland has converged from below over time but as for factor income per capita there has been divergence since 1981. Southern Finland has been close to national average all the time.

In general it can be said that regional differences in per capita income are rather small today in Finland. In addition to the fact that market incomes (factor incomes) per capita have converged, the mechanisms of the Welfare State operating via taxation, transfers and public service provision have all boosted convergence. Although there is much room for additional study and some puzzling features in our results, it also seems that regional differences in per capita income decreased from a boom year 1990 to the period 1994-96 which followed a three years' decline in GDP.

Before summarising our results on income inequality, it is worth pointing out that at the same time as convergence has taken place, there have been major changes in regional demographic structures during 1966-96. The population of Uusimaa surrounding Helsinki has increased considerably, whereas elsewhere growth has been much smaller and in some years Northern and Eastern Finland have lost population. In addition to income convergence there has also been a clear convergence of regional household sizes. Thus the demographic structure from which we derive results for each region changes from one Household Survey year to another.

Income inequality within regions was studied in terms of Gini-coefficients based on per capita and the square root equivalence scales, respectively. Qualitatively the results are the same whether we assume economies of scale in the household needs or not. The main difference is that Atkinson's square root equivalence scale gives lower Gini-coefficients than per capita scale.

The general level and development of regional Gini-coefficients at NUTS2-level (excluding Åland) is remarkably similar to the national Gini-coefficients. The maximum difference between highest and lowest Gini-coefficient in any year is less than 9 percentage points for any income concept during all the years considered. For disposable income this maximum range is less than 4 percentage points in any year during 1966-1996.

After a slight decline, the Gini-coefficients based on factor income have increased since mid-1970s, especially from 1985 on such that the greatest increase is from 1990 to 1994-96. This is not surprising remembering that the last period follows the deep economic crisis. Gini-coefficients based on gross income, disposable income and final income have all decreased from 1966 to 1976, and thereafter there is no major change in their level. It is surprising that also from 1990 to 1994-96 there is only a slight increase in inequality suggesting that the economic crisis in the early 1990s left income distribution relatively unaffected.

In this connection we also refer to the results of Lehtinen (1998) and Uusitalo (1997) who have studied income inequality with annually available income distribution statistics covering the years 1991-93, too. Their results based on Gini-coefficients and income shares of top and bottom deciles indicate that there were almost no changes at all in inequality when looking at disposable income during the period 1990-94. Thus market processes and the mechanisms of the Welfare State together did not affect income inequality during the depression, at least when evaluated by conventional measures, which is surprising.

In international comparisons (c.f. Atkinson et al. 1995) Finland does not differ remarkably from other countries when inequality of factor income is considered. However, it has turned out that Finland together with Sweden, is a country where income inequality based on disposable income is the lowest among nations considered. Thus the Welfare State has a considerable impact on income distribution. Our results suggest that inequality within any NUTS2 region in Finland (excluding Åland) does not differ from the national picture to any considerable extent. The Welfare State seems to work very similarly throughout the country.

Recently there has been considerable interest in the connection between income distribution and economic growth. In Finland growth of GDP per capita has exceeded the respective average of OECD-Europe since 1950s. Comparable information on income inequality in Europe does not exist for the whole post-war period. So all we can say is that Finland is a country where income inequality has since mid 1960s first declined and thereafter roughly stayed at the same low level, and per capita growth of GDP has been fast in international comparison during the whole period. As for developments within Finland, since Gini-

coefficients have not varied considerably by region, differences in regional income growth rates cannot be explained by income inequality.

To conclude, this paper has been mainly descriptive. We have wanted to present our basic results in terms of figures and tables where the numbers are estimated averages from the samples included in Household Surveys during 1966-96. Our conclusions about regional differences in this paper are not based on a statistical approach where we would calculate confidence intervals and test whether regional estimates differ from each other or the respective national averages. We intend to do this type of work later, but already now we are rather confident that the basic picture given in this paper on regional convergence and income inequality within regions is in a broad sense on sound basis.

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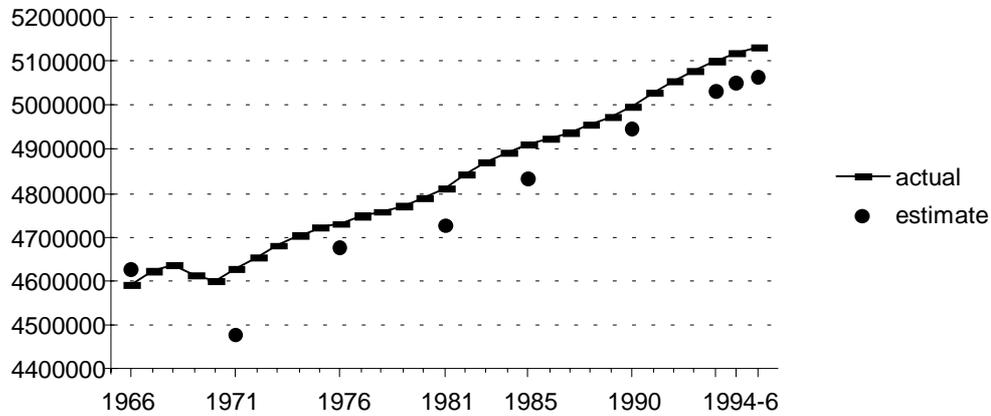
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*Figure A1 Actual population development and the point estimate of the number of household members in Finland calculated from the Household Survey data*



*Table A1b Age of household head by major region and year*

Year	Uusimaa	Southern Finland	Eastern Finland	Mid-Finland	Northern Finland	Finland
1966	47.3	48.8	48.6	48.3	45.8	48.1
1971	45.5	48.1	48.3	48.3	45.4	47.3
1976	45.3	46.8	47.9	48.3	45.9	46.7
1981	44.9	47.6	45.8	47.0	44.5	46.3
1985	45.8	48.8	47.7	47.5	44.4	47.3
1990	46.4	49.4	50.0	48.5	46.8	48.3
1994	46.1	51.2	50.3	49.0	45.4	48.8
1995	47.5	51.3	48.5	50.6	46.1	49.2
1996	47.0	50.4	49.6	50.4	47.8	49.1
1994-6	46.9	50.9	49.5	50.0	46.4	49.1
Change*	-0.3	1.6	1.0	2.1	2.0	1.0
1966-96						

\*percentage points

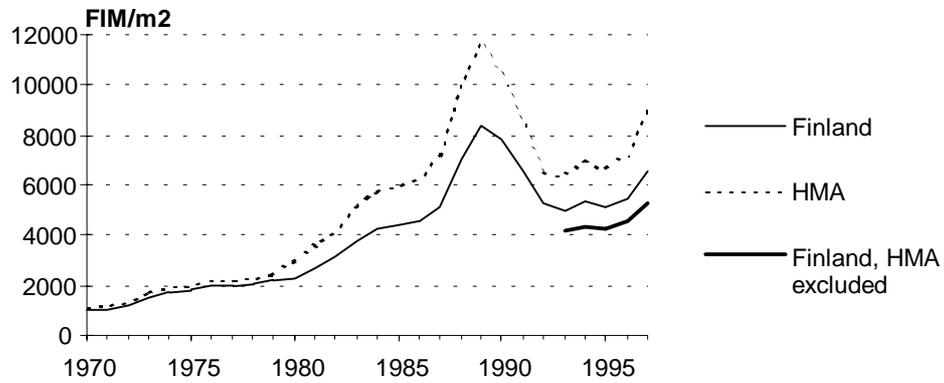
*Table A1c Share of household heads with at least upper secondary education by major region and year, per cent of household heads*

Year	Uusimaa	Southern Finland	Eastern Finland	Mid- Finland	Northern Finland	Finland
1966	14.5	3.9	4.3	2.8	3.5	6.1
1971	15.6	6.3	3.6	5.0	6.0	7.8
1976	16.3	6.9	5.6	7.4	8.6	9.4
1981	16.5	8.9	6.5	7.5	10.1	10.4
1985	19.4	9.5	7.2	9.1	8.8	11.7
1990	23.1	10.5	9.0	10.2	11.5	13.7
1994	21.5	16.5	13.3	12.5	13.8	16.6
1995	22.6	11.5	9.4	11.3	16.4	14.6
1996	23.3	15.8	13.2	11.2	13.0	16.5
1994-6	22.4	14.6	11.9	11.7	14.4	15.9
Change* 1966-96	8.8	11.9	8.9	8.4	9.5	10.4

\*percentage points

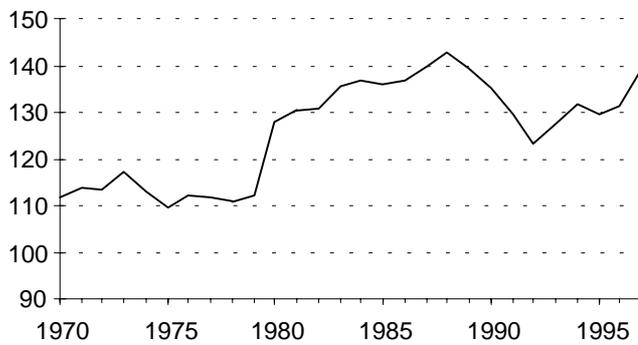
## Appendix 2

Figure A2 Average (nominal) apartment prices in Finland, 1970-1997



Source: Statistics Finland

Figure A3 Apartment prices in the Helsinki Metropolitan Area (HMA) (Finland=100)



Source: Statistics Finland



## Appendix 3

*Table A4 Per capita factor income, gross income, disposable income and final income by major region (Finland = 100)*

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Factor income</b>										
Uusimaa	152.5	144.8	132.6	129.2	131.8	131.3	130.4	119.5	122.8	124.2
Southern Finland	103.3	99.5	96.7	95.9	94.1	95.5	96.4	100.0	99.2	98.6
Eastern Finland	75.3	77.1	79.2	86.3	83.7	79.4	78.9	88.4	82.1	83.1
Mid-Finland	79.9	83.6	87.5	86.1	87.8	85.8	84.3	85.0	85.8	85.0
Northern Finland	72.3	77.8	88.2	87.3	85.9	87.7	84.4	86.5	88.4	86.4
Åland	75.4	72.2	116.7	122.9	125.0	109.6	123.8	113.3	75.9	103.1
Finland	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Gross income</b>										
Uusimaa	150.5	142.2	129.0	124.2	124.1	124.7	120.2	113.1	116.2	116.5
Southern Finland	103.0	98.9	97.0	96.7	96.6	97.2	97.8	101.3	99.4	99.6
Eastern Finland	76.2	79.7	82.6	89.1	89.0	85.3	88.1	92.3	87.6	89.3
Mid-Finland	80.3	83.6	88.1	88.3	88.4	87.1	88.3	88.2	89.7	88.7
Northern Finland	74.5	80.4	89.4	88.7	86.9	87.9	88.3	88.3	91.4	89.3
Åland	91.1	75.4	113.7	118.2	114.4	106.4	103.1	115.8	90.7	102.2
Finland	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Disposable income</b>										
Uusimaa	146.4	137.6	123.2	118.7	117.7	118.9	113.5	108.5	110.7	110.9
Southern Finland	103.1	98.4	98.5	98.0	98.1	98.4	99.0	102.3	100.5	100.6
Eastern Finland	76.8	82.8	85.8	91.1	91.9	89.0	92.1	95.2	91.5	92.9
Mid-Finland	82.2	85.0	89.7	90.7	90.4	89.5	91.6	90.3	92.3	91.4
Northern Finland	77.0	83.5	90.3	89.9	89.5	89.2	91.3	89.8	92.7	91.2
Åland	93.3	85.8	107.6	123.2	120.1	107.4	106.0	113.9	94.5	104.1
Finland	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Final income</b>										
Uusimaa	..	133.5	119.8	115.4	114.1	114.5	..	..	..	..
Southern Finland	..	97.5	98.6	97.9	97.6	98.6	..	..	..	..
Eastern Finland	..	85.3	87.9	93.4	94.8	91.5	..	..	..	..
Mid-Finland	..	87.3	90.5	92.0	92.1	91.9	..	..	..	..
Northern Finland	..	87.5	92.6	92.5	93.7	92.5	..	..	..	..
Åland	..	87.7	109.8	119.5	114.0	105.0	..	..	..	..
Finland	..	100.0	100.0	100.0	100.0	100.0	..	..	..	..

## Appendix 4

*Table A5 Regional Gini-coefficients (%) based on per capita factor income, gross income, disposable income and final income*

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Factor income</b>										
Uusimaa	36.3	34.1	34.6	34.5	35.2	38.0	48.9	46.0	43.8	46.4
Southern Finland	38.1	37.2	34.2	37.5	37.8	41.6	48.3	48.0	49.7	48.8
Eastern Finland	40.1	43.2	37.6	38.3	40.3	42.7	50.5	50.6	53.8	51.7
Mid-Finland	41.0	38.2	37.2	39.2	38.6	40.6	45.5	46.9	47.1	46.6
Northern Finland	40.7	40.3	39.6	39.3	38.6	40.4	50.3	44.5	47.9	47.7
Åland	44.4	34.1	29.4	33.4	34.3	36.4	30.8	45.4	48.0	42.3
Finland	41.2	39.8	37.0	38.3	38.8	41.7	49.5	47.8	48.7	48.7
<b>Gross income</b>										
Uusimaa	32.3	29.8	28.0	26.3	26.6	26.4	33.2	28.1	27.5	29.7
Southern Finland	33.0	30.0	25.6	25.7	24.2	26.2	27.5	27.2	29.5	28.1
Eastern Finland	34.6	34.3	27.3	26.9	25.4	25.6	26.9	28.0	29.9	28.3
Mid-Finland	35.6	31.4	27.3	26.8	26.5	25.7	24.3	25.5	26.9	25.6
Northern Finland	34.3	33.1	28.4	28.3	26.0	26.9	27.7	27.1	28.7	27.9
Åland	29.2	23.0	27.9	25.7	26.4	24.8	19.6	28.0	28.0	26.0
Finland	36.3	33.3	28.3	27.5	26.6	27.4	29.5	27.9	29.2	28.9
<b>Disposable income</b>										
Uusimaa	30.7	27.3	23.8	22.3	22.1	22.3	28.1	23.7	23.1	25.1
Southern Finland	31.0	26.5	22.3	21.9	20.8	22.5	23.3	23.1	25.6	24.0
Eastern Finland	32.3	31.7	22.8	22.7	21.4	21.7	23.5	23.9	26.5	24.6
Mid-Finland	34.0	28.1	22.8	22.8	22.8	22.2	20.9	22.1	23.5	22.2
Northern Finland	32.7	30.5	24.3	23.6	22.5	22.4	23.4	22.9	24.8	23.8
Åland	34.0	24.6	23.9	23.8	24.5	22.8	17.8	22.6	25.7	22.8
Finland	34.2	30.0	24.1	23.2	22.4	23.2	24.8	23.6	25.1	24.5
<b>Final income</b>										
Uusimaa	..	25.2	21.3	19.5	19.9	19.8	..	..	..	..
Southern Finland	..	24.2	19.9	19.0	18.9	19.9	..	..	..	..
Eastern Finland	..	26.9	19.8	19.5	20.2	18.6	..	..	..	..
Mid-Finland	..	23.9	20.0	20.1	20.4	19.6	..	..	..	..
Northern Finland	..	25.7	20.3	20.4	19.9	18.7	..	..	..	..
Åland	..	22.1	20.6	20.9	21.8	20.1	..	..	..	..
Finland	..	26.7	21.2	20.1	20.2	20.2	..	..	..	..

*Table A6 Regional Gini-coefficients (%) based on income per Atkinson's equivalent unit (square root equivalence scale) for factor income, gross income, disposable income and final income*

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Factor income</b>										
Uusimaa	33.2	30.6	32.3	32.7	33.9	36.5	47.4	44.0	42.6	44.8
Southern Finland	33.8	35.1	31.8	35.7	36.4	39.6	46.8	46.9	47.7	47.2
Eastern Finland	35.0	38.8	34.5	35.4	38.7	40.6	48.7	48.7	51.5	49.6
Mid-Finland	35.5	34.7	34.0	36.5	36.0	38.5	43.5	45.0	46.6	45.1
Northern Finland	36.3	35.1	37.1	35.5	35.7	37.8	47.5	42.8	44.9	45.2
Åland	43.0	33.1	26.8	32.2	31.5	35.7	31.1	43.5	47.6	41.6
Finland	36.3	36.2	34.1	35.7	36.7	39.5	47.6	46.1	47.0	46.9
<b>Gross income</b>										
Uusimaa	29.2	26.3	25.7	24.7	25.6	25.4	32.0	26.2	27.2	28.6
Southern Finland	28.9	28.3	23.7	25.0	23.6	24.8	26.3	26.7	28.1	27.1
Eastern Finland	29.4	29.9	24.3	24.6	24.8	24.1	24.9	27.0	27.6	26.5
Mid-Finland	30.3	27.8	24.6	25.2	24.5	24.3	22.7	23.6	26.6	24.4
Northern Finland	29.7	26.9	26.0	24.7	23.6	24.9	24.9	24.2	25.4	24.9
Åland	27.3	25.1	23.4	24.3	24.1	23.3	21.5	24.8	24.1	24.0
Finland	31.2	29.5	25.5	25.5	25.1	25.8	27.8	26.3	27.9	27.4
<b>Disposable income</b>										
Uusimaa	26.7	23.3	20.8	20.2	20.9	20.9	26.2	20.9	21.6	23.0
Southern Finland	27.1	24.0	20.0	21.0	19.6	20.6	21.3	21.8	23.3	22.2
Eastern Finland	27.3	27.0	19.7	20.4	20.6	19.9	20.8	22.3	23.6	22.2
Mid-Finland	28.9	24.2	20.0	20.9	20.5	20.4	18.9	19.6	21.7	20.1
Northern Finland	28.0	24.3	20.9	20.0	20.0	19.9	20.2	19.2	20.7	20.1
Åland	29.0	26.6	19.6	22.9	22.6	20.7	18.1	18.7	21.5	20.0
Finland	29.0	25.7	20.9	21.1	20.7	21.1	22.5	21.3	22.8	22.2
<b>Final income</b>										
Uusimaa	..	22.1	19.4	19.0	20.2	20.1	..	..	..	..
Southern Finland	..	22.8	19.1	19.7	19.2	19.8	..	..	..	..
Eastern Finland	..	23.6	18.2	19.1	20.2	19.3	..	..	..	..
Mid-Finland	..	21.8	18.8	19.8	19.7	19.4	..	..	..	..
Northern Finland	..	21.4	18.3	18.2	19.5	18.5	..	..	..	..
Åland	..	25.1	18.2	21.7	21.5	19.9	..	..	..	..
Finland	..	23.5	19.3	19.5	20.0	20.0	..	..	..	..

## Appendix 5

*Table A7 Shares of transfers, direct taxes, and net transfers from disposable income*

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Uusimaa</b>										
Transfers	0.087	0.137	0.171	0.175	0.201	0.241	0.372	0.372	0.354	0.366
Direct taxes	0.228	0.280	0.405	0.368	0.413	0.395	0.468	0.438	0.457	0.455
Transfers-Direct taxes	-0.140	-0.143	-0.234	-0.193	-0.211	-0.154	-0.096	-0.067	-0.103	-0.089
<b>Southern Finland</b>										
Transfers	0.102	0.143	0.198	0.209	0.270	0.288	0.428	0.410	0.397	0.411
Direct taxes	0.181	0.248	0.320	0.290	0.325	0.313	0.370	0.368	0.367	0.368
Transfers-Direct taxes	-0.079	-0.106	-0.122	-0.081	-0.055	-0.025	0.058	0.042	0.030	0.043
<b>Eastern Finland</b>										
Transfers	0.124	0.184	0.238	0.236	0.302	0.328	0.492	0.438	0.446	0.459
Direct taxes	0.170	0.187	0.283	0.271	0.298	0.272	0.323	0.336	0.320	0.327
Transfers-Direct taxes	-0.046	-0.002	-0.045	-0.035	0.004	0.057	0.169	0.102	0.126	0.133
<b>Mid-Finland</b>										
Transfers	0.115	0.152	0.203	0.226	0.257	0.283	0.441	0.420	0.421	0.428
Direct taxes	0.155	0.213	0.312	0.270	0.309	0.293	0.331	0.344	0.352	0.342
Transfers-Direct taxes	-0.040	-0.062	-0.108	-0.045	-0.052	-0.010	0.111	0.076	0.069	0.085
<b>Northern Finland</b>										
Transfers	0.133	0.185	0.225	0.232	0.266	0.281	0.463	0.424	0.427	0.438
Direct taxes	0.144	0.181	0.331	0.279	0.298	0.308	0.333	0.353	0.359	0.348
Transfers-Direct taxes	-0.011	0.004	-0.106	-0.047	-0.031	-0.027	0.130	0.071	0.068	0.090
<b>Finland</b>										
Transfers	0.107	0.152	0.200	0.208	0.253	0.278	0.424	0.406	0.397	0.409
Direct taxes	0.184	0.236	0.338	0.304	0.340	0.328	0.383	0.379	0.384	0.382
Transfers-Direct taxes	-0.077	-0.083	-0.138	-0.096	-0.087	-0.050	0.041	0.028	0.014	0.027



*Table A9 Concentration coefficients of various income components with respect to disposable income\**

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Uusimaa</b>										
Earned incomes	31.9	26.7	26.2	27.6	29.5	30.1	36.5	35.8	34.8	35.8
Unearned incomes	25.5	27.1	37.9	33.8	32.1	42.4	62.0	41.6	45.4	51.7
Income transfers	1.9	17.1	5.9	-4.8	-3.4	-5.7	4.1	-5.8	-3.7	-1.7
Direct taxes	38.0	34.3	35.2	33.7	35.0	35.0	43.4	36.0	37.6	39.2
Disposable income	26.7	23.3	20.8	20.2	20.9	20.9	26.2	20.9	21.6	23.0
<b>Southern Finland</b>										
Earned incomes	34.8	33.8	28.4	32.3	30.4	31.3	36.7	34.6	35.6	35.7
Unearned incomes	23.9	25.9	20.7	28.0	29.7	42.7	45.4	53.5	53.2	51.2
Income transfers	-6.2	-5.8	-0.3	-12.3	-5.7	-8.9	-2.2	-3.3	-2.0	-2.5
Direct taxes	37.3	42.7	32.5	36.3	33.3	35.4	37.9	38.6	39.3	38.7
Disposable income	27.1	24.0	20.0	21.0	19.6	20.6	21.3	21.8	23.3	22.2
<b>Eastern Finland</b>										
Earned incomes	41.4	41.2	30.5	30.5	30.1	32.7	33.1	38.1	40.8	37.4
Unearned incomes	17.2	24.4	24.3	30.1	39.5	39.8	53.3	48.5	45.9	49.3
Income transfers	-3.2	-3.7	-1.1	-4.5	-3.2	-7.2	0.6	-3.1	-2.4	-1.6
Direct taxes	38.2	42.4	35.1	36.7	35.8	37.4	35.1	39.0	38.1	37.5
Disposable income	27.3	27.0	19.7	20.4	20.6	19.9	20.8	22.3	23.6	22.2
<b>Mid-Finland</b>										
Earned incomes	35.9	35.6	32.0	34.3	29.5	31.3	31.2	35.6	34.9	34.2
Unearned incomes	29.4	23.0	19.3	24.9	32.6	37.7	45.4	41.5	48.9	45.4
Income transfers	-2.1	-4.0	-5.5	-8.9	-1.8	-9.3	-3.4	-7.7	-1.5	-4.3
Direct taxes	35.7	41.6	33.9	38.5	35.1	34.1	31.7	32.9	38.3	34.5
Disposable income	28.9	24.2	20.0	20.9	20.5	20.4	18.9	19.6	21.7	20.1
<b>Northern Finland</b>										
Earned incomes	39.8	34.6	33.2	31.8	29.9	31.7	36.7	33.3	36.0	35.5
Unearned incomes	21.1	20.5	23.1	24.3	30.2	35.6	47.6	39.9	38.5	42.3
Income transfers	-7.3	4.1	-6.3	-4.1	-4.2	-4.8	-2.9	-1.0	-0.4	-1.6
Direct taxes	39.3	38.1	35.5	38.5	33.0	39.1	37.1	35.7	36.4	36.5
Disposable income	28.0	24.3	20.9	20.0	20.0	19.9	20.2	19.2	20.7	20.1
<b>Finland</b>										
Earned incomes	39.2	36.6	30.9	32.4	31.6	33.0	36.9	36.2	37.1	36.8
Unearned incomes	21.1	20.6	21.2	25.0	29.9	38.0	50.3	46.6	48.4	48.5
Income transfers	-3.3	0.5	-0.9	-8.4	-4.9	-7.4	-0.8	-4.2	-2.5	-2.5
Direct taxes	40.9	42.6	35.7	37.4	35.7	37.5	39.8	37.7	39.4	39.0
Disposable income	29.0	25.7	20.9	21.1	20.7	21.1	22.5	21.3	22.8	22.2

\* Here we consider income per Atkinson's equivalent unit (square root equivalence scale).

*Table A10 Regional and national inequality elasticities by income components in 1966-96\**

Major region	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Uusimaa</b>										
Earned incomes	0.186	0.147	0.276	0.400	0.454	0.461	0.355	0.672	0.572	0.513
Unearned incomes	-0.008	0.021	0.126	0.061	0.060	0.115	0.266	0.119	0.180	0.200
Income transfers	-0.081	-0.037	-0.123	-0.217	-0.234	-0.308	-0.314	-0.475	-0.415	-0.393
Direct taxes	-0.097	-0.132	-0.279	-0.244	-0.280	-0.268	-0.307	-0.316	-0.337	-0.319
<b>Southern Finland</b>										
Earned incomes	0.227	0.351	0.395	0.481	0.478	0.435	0.543	0.428	0.387	0.448
Unearned incomes	-0.034	0.020	0.007	0.062	0.096	0.202	0.217	0.327	0.295	0.282
Income transfers	-0.125	-0.177	-0.201	-0.332	-0.347	-0.413	-0.472	-0.472	-0.431	-0.458
Direct taxes	-0.068	-0.194	-0.201	-0.211	-0.227	-0.224	-0.288	-0.283	-0.251	-0.272
<b>Eastern Finland</b>										
Earned incomes	0.346	0.348	0.399	0.382	0.347	0.461	0.364	0.468	0.463	0.435
Unearned incomes	-0.140	-0.032	0.074	0.122	0.223	0.225	0.335	0.285	0.226	0.282
Income transfers	-0.139	-0.209	-0.251	-0.288	-0.349	-0.448	-0.477	-0.500	-0.492	-0.492
Direct taxes	-0.067	0.107	-0.222	-0.216	-0.221	-0.238	-0.222	-0.253	-0.197	-0.224
<b>Mid-Finland</b>										
Earned incomes	0.153	0.346	0.485	0.497	0.353	0.422	0.438	0.586	0.425	0.486
Unearned incomes	0.007	-0.016	-0.011	0.052	0.147	0.187	0.307	0.231	0.293	0.277
Income transfers	-0.123	-0.177	-0.259	-0.321	-0.280	-0.412	-0.521	-0.585	-0.449	-0.518
Direct taxes	-0.037	-0.154	-0.216	-0.228	-0.220	-0.197	-0.225	-0.233	-0.269	-0.245
<b>Northern Finland</b>										
Earned incomes	0.300	0.302	0.497	0.494	0.419	0.507	0.560	0.542	0.591	0.568
Unearned incomes	-0.073	-0.045	0.027	0.043	0.099	0.140	0.248	0.206	0.118	0.189
Income transfers	-0.168	-0.154	-0.293	-0.280	-0.323	-0.349	-0.530	-0.445	-0.436	-0.472
Direct taxes	-0.058	-0.103	-0.230	-0.257	-0.195	-0.298	-0.278	-0.303	-0.273	-0.286
<b>Finland</b>										
Earned incomes	0.274	0.353	0.445	0.492	0.478	0.491	0.491	0.549	0.491	0.510
Unearned incomes	-0.080	-0.049	0.004	0.034	0.082	0.138	0.245	0.229	0.228	0.234
Income transfers	-0.119	-0.149	-0.208	-0.291	-0.312	-0.375	-0.440	-0.487	-0.440	-0.455
Direct taxes	-0.075	-0.155	-0.241	-0.235	-0.247	-0.254	-0.296	-0.292	-0.279	-0.289

\* Here we consider income per Atkinson's equivalent unit (square root equivalence scale).

*Table A11 Inequality elasticities of regional income components with respect to Gini-coefficient at national level\**

Major regions	1966	1971	1976	1981	1985	1990	1994	1995	1996	1994-6
<b>Uusimaa</b>										
Earned incomes	0.044	0.038	0.072	0.105	0.123	0.132	0.103	0.184	0.160	0.144
Unearned incomes	-0.002	0.005	0.033	0.016	0.016	0.033	0.077	0.033	0.050	0.056
Income transfers	-0.019	-0.009	-0.032	-0.057	-0.064	-0.088	-0.091	-0.130	-0.116	-0.111
Direct taxes	-0.023	-0.034	-0.073	-0.064	-0.076	-0.077	-0.089	-0.087	-0.094	-0.090
Share of total disp.inc.	0.237	0.255	0.262	0.262	0.271	0.286	0.291	0.274	0.280	0.282
<b>Southern Finland</b>										
Earned incomes	0.090	0.130	0.142	0.172	0.170	0.153	0.186	0.154	0.146	0.162
Unearned incomes	-0.013	0.008	0.003	0.022	0.034	0.071	0.074	0.118	0.111	0.102
Income transfers	-0.050	-0.066	-0.072	-0.118	-0.124	-0.146	-0.162	-0.170	-0.162	-0.165
Direct taxes	-0.027	-0.072	-0.072	-0.075	-0.081	-0.079	-0.099	-0.102	-0.095	-0.098
Share of total disp.inc.	0.397	0.371	0.359	0.357	0.356	0.352	0.343	0.361	0.377	0.360
<b>Eastern Finland</b>										
Earned incomes	0.054	0.053	0.055	0.053	0.048	0.059	0.047	0.062	0.053	0.055
Unearned incomes	-0.022	-0.005	0.010	0.017	0.031	0.029	0.044	0.038	0.026	0.035
Income transfers	-0.022	-0.032	-0.035	-0.040	-0.049	-0.058	-0.062	-0.066	-0.056	-0.062
Direct taxes	-0.011	-0.016	-0.031	-0.030	-0.031	-0.031	-0.029	-0.033	-0.023	-0.028
Share of total disp.inc.	0.157	0.153	0.139	0.140	0.139	0.129	0.130	0.132	0.115	0.125
<b>Mid-Finland</b>										
Earned incomes	0.017	0.045	0.063	0.066	0.046	0.053	0.054	0.072	0.052	0.060
Unearned incomes	0.001	-0.002	-0.001	0.007	0.019	0.024	0.038	0.029	0.036	0.034
Income transfers	-0.014	-0.023	-0.034	-0.043	-0.036	-0.052	-0.065	-0.072	-0.055	-0.064
Direct taxes	-0.004	-0.020	-0.028	-0.030	-0.028	-0.025	-0.028	-0.029	-0.033	-0.030
Share of total disp.inc.	0.110	0.130	0.130	0.132	0.129	0.126	0.124	0.123	0.122	0.123
<b>Northern Finland</b>										
Earned incomes	0.030	0.026	0.052	0.051	0.042	0.052	0.060	0.057	0.060	0.059
Unearned incomes	-0.007	-0.004	0.003	0.004	0.010	0.014	0.027	0.022	0.012	0.020
Income transfers	-0.017	-0.013	-0.031	-0.029	-0.032	-0.035	-0.057	-0.047	-0.045	-0.049
Direct taxes	-0.006	-0.009	-0.024	-0.027	-0.020	-0.030	-0.030	-0.032	-0.028	-0.030
Share of total disp.inc.	0.100	0.087	0.105	0.103	0.100	0.102	0.107	0.105	0.102	0.104
<b>Finland</b>										
Earned incomes	0.274	0.353	0.445	0.492	0.478	0.491	0.491	0.549	0.491	0.510
Unearned incomes	-0.080	-0.049	0.004	0.034	0.082	0.138	0.245	0.229	0.228	0.234
Income transfers	-0.119	-0.149	-0.208	-0.291	-0.312	-0.375	-0.440	-0.487	-0.440	-0.455
Direct taxes	-0.075	-0.155	-0.241	-0.235	-0.247	-0.254	-0.296	-0.292	-0.279	-0.289
Share of total disp.inc.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

\* The elasticities have been calculated by weighting the elasticities in Table A10 by the region's share of total disposable income (presented in Table A11 for each region).