EMPIRICAL RESULTS CONCERNING VERTICAL AND HORIZONTAL REDISTRIBUTION IN FINLAND

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Redistributional effects of income transfers, taxation and social goods in Finland have been studied making use of household surveys for 1966 and 1971 and the input-output study for 1970. According to the study the selection of income to be used as the criterion in carrying out the decile grouping substantially influences the picture that is obtained of the magnitude of redistribution. If factor income is used as the criterion in carrying out the decile grouping, the redistribution appears substantially greater than when disposable income is used as the criterion. On the other hand, whether income is calculated per capita or per household does not substantially influence the overall picture of redistribution obtained. The breakdown of factor income seems to have remained practically the same in Finland in the interval between the study years, while redistribution seems to have levelled income differences more in 1971 than in 1966.

1. THE OBJECT OF THE STUDY

The aim of the study was to find the effects of both vertical and horizontal redistribution of income transfers, taxation and social goods in Finland.[1] In empirical studies in general, and also in this study, redistribution has been studied by first calculating factor income, after which the taxes paid have been deducted and the income transfers received added. Here, the difference between the incomes defined before and after the public sector budget becomes the definition of redistribution. Redistribution is influenced by the indirect effects of measures taken by the public sector in earlier years, the direct effects of measures taken during the year under review and possibly, depending on the length of lag, by the indirect effects of the measures taken during the year under review. It is not possible to distinguish the separate effects of these three factors, although in the empirical study of redistribution the matter has indeed been examined as though only the measures taken during the year under review would affect the redistribution.

Vertical redistribution was examined with respect to the decile distribution and horizontal distribution with respect to the socio-economic status of the household, its size and the age of the person heading it. The redistribution effects of income transfers were examined mainly as gross totals, but with respect to the decile distribution also as net totals, whereby not only the receipt of income transfers was taken into account, but also their financing. The net benefit was thus the difference between the income transfers received and the amount contributed towards financing these same transfers.

In order to assess the significance of the study object, time series showing the development of social security (net), taxes and social insurance contributions between 1950 and 1974 are presented in the following table.

[1]The article contains the most important results of a recently published study: Suominen, Risto: *The Incidence of Social Transfers.* Official Statistics of Finland, Special Social Studies No. XXXII: 51. Helsinki 1977. (In Finnish, with English summary). The study was completed with the assistance of a grant from the Yrjö Jahnsson Foundation.

TABLE 1

PROPORTION OF GROSS DOMESTIC PRODUCT AT MARKET PRICES REPRESENTED BY SOCIAL SECURITY, TAXES AND SOCIAL INSURANCE CONTRIBUTIONS, 1950–1974, IN PERCENTAGES*

	Care of the Sick and Health Care	Pensions	Family Policy	Other Social Security and Social Welfare	Taxes	Social Insurance Contributions
1950	1.2	0.8	3.7	2.6	24.8	3.2
1955	1.5	1.6	3.3	2.3	22.8	3.2
1960	1.8	3.3	2.4	1.7	23.8	3.6
1965	2.8	4.1	2.5	1.5	24.7	5.2
1970	3.9	5.8	2.0	2.5	27.4	6.3
1971	4.2	6.5	2.0	2.7	28.5	7.0
1972	4.6	6.8	1.8	3.0	—	7.2
1973	4.6	6.9	1.6	2.9	—	8.0
1974†	4.7	7.3	1.6	2.9	—	8.2

*Ellala, Esa; Suominen, Risto; and Kotiranta, Maija-Liisa: *The development of social security in Finland from 1950 to 1974.* Official statistics of Finland, Special Social Studies XXXII:48. Helskinki 1976.

†Preliminary data.

The social security sectors are divided in a different manner in Table 1 than in this study. In the table, transfers and services have been added together, whereas in this study they are examined separately. The table encompasses such aspects of social security as occupational safety and health and homes for the aged not covered by this study at all; on the other hand, this study covers some income transfers that do not appear in the table. Thus the development trends do not fully correspond to the concepts of this study. Nevertheless the table reveals the main features of the development, and these are correct also with respect to the social security classification used in this study.

The main features of the development of social security are clear: pension costs have grown most vigorously, and the cost of medical treatment and health care at the second greatest rate, so that the proportion of gross domestic product represented by both of these has increased. The major social security reforms with respect to pension security in the late 1950s and with respect to medical treatment and health care in the 1960s are clearly visible in the trends. The proportion of GDP represented by sums expended on family policy has clearly declined, which stems on one hand from a drop in the number of children and on the other from a slow growth in the real value of this expenditure. The proportion of GDP represented by other social security and social welfare is slightly greater in the latter half of the review period than in its first half. In the early years of the last decade, however, this expenditure was at a clearly lower level.

Taxation has been increasing in total throughout the review period. The proportion of GDP represented by social insurance contributions has more than doubled. Thus the total burden of taxation, social insurance contributions included, has increased quite strongly. This increase has been vigorous especially since the middle of the last decade.

2. The Data

The empirical data for the study was provided by the 1966 and 1971 household surveys, with the main focus being on the latter. The population covered by the study consisted of households living outside institutions. The final material of the 1966 household survey was 3,083 and of the 1971 survey 9,055 households. The representativeness of the latter household survey was deficient in the following respects: the average number of persons per household was clearly too large and households headed by persons aged over 65 as well as households in southern Finland were under-represented. The unit of research used in this study was the household and all income and benefits were calculated per household member. A natural consequence of using this method was that large households moved downwards in the income distribution scale, relative to a distribution by household. Nevertheless this solution was considered preferable to, e.g., the use of controversial consumption units systems. However, this calculation of income on a per capita basis obviously gives too negative a picture of the position of large households, which can benefit from the "economies of scale".

Compared with other statistics, the data contained in the 1971 household survey seem quite reliable.[2] Only the incomes of entrepreneurs seem too low, by about 20 percent. Indirect taxes likewise clearly seem too low in this study. Compared with the macro-statistics they represent only about 50 percent of the indirect taxes paid. The causes from which this stems include the fact that alcohol consumption in the households covered by the survey was considerably lower than in the macro-statistics. In addition to this, a portion of the indirect taxes contained in the macro-statistics are paid by foreign consumers, since indirect taxes are also included in the prices of export commodities. Correspondingly, the prices of imported goods contain indirect taxes not included in the Finnish macro-statistics. No data is available concerning the size of these two items and it is thus impossible to estimate exactly how much households really paid in indirect taxes in 1971.

3. Definitions

Factor income has been counted as including wages and salaries (gross), housing benefit and rent income, income from agriculture (net), income from silviculture (net), income from other entrepreneurial activities (net), income from assets and the direct support paid to agriculture by the public sector. Wages and salaries also include remuneration in kind and the wages and salaries paid by the public sector. The costs incurred in earning one's living have been deducted from the wages and salaries figures. The housing benefit is a calculation of the value to a householder of living in his or her own dwelling; it also contains an estimate of the value of one's own labour in building dwellings oneself. Income from entrepreneurial activity in agriculture also includes the value of goods used for one's own consumption.

Social security contributions, income tax and *other direct taxes* have been combined in a single category: *direct taxes.* Income tax and wealth tax are

[2] *Finnish survey on relative income differences, 1971.* Central Statistical Office of Finland. Helsinki 1976, pp. 9–10.

progressive. Of these taxes, wealth tax produces quite little revenue, since the deductions permissible are rather extensive and the tax does not apply to persons with low wealth rate. Municipalities in Finland have the right to levy taxes and they independently determine the magnitude of the proportional communal tax they exact. Employees pay a proportional social security contribution, which has no upper limit, out of their earnings. In 1971 revenue from income tax and wealth tax accounted for about 5.6 percent of the GDP, from communal (municipal) tax about 7.3 percent and from employees' social security contributions about 1.4 percent.

The income transfers paid to households were divided into the following four groups: pensions, family-policy transfers, transfers connected with health care and other transfers.

A. Pension security in Finland can be broken down into two principal components: the national pensions system and the employment pensions system. Both of these systems contain three parts: the old-age pension (paid to persons over 65), a family pension and an invalidity (incapacity for work) pension. The national pension consists of a flat-rate basic part and means-tested supplements. Under the employment pensions scheme, the size of the pension paid is positively related to the size of one's income from gainful employment during one's earning period. In 1971 the employment pensions paid represented about 2.8 percent of the GDP and national pensions about 3.5 percent, while the family pensions paid through both schemes together represented about 0.5 percent. According to the SNA, the employment pensions scheme is included in the households sector.

B. The proportion of family-policy transfers represented by child allowances was about 75 percent. In Finland, a child allowance is paid in respect of each child aged under 16 and increases according to the number of children in the family. The total sum paid in family-policy transfers equalled only about 0.9 percent of the GDP, since in 1971 a considerable part of the family-policy benefits were given in the form of tax relief and services. In this study the effects of the tax relief granted are noticeable in direct taxation, while the services are included in social goods.

C. The bulk of the transfers connected with health care consisted of sickness insurance benefits and compensations paid under the War Disabilities Act. All persons resident in Finland are covered by the sickness insurance scheme. Sickness insurance benefits are paid in the form of per diem allowances, which up to a certain maximum limit are positively related to wage earnings, and as compensations for treatment. The compensations paid under the War Disabilities Act are paid in respect of bodily injury or sickness stemming from military service. The sickness insurance benefits paid in 1971 represented about 1.1 percent of the GDP and the compensations paid under the War Disabilities Act about 0.5 percent.

D. Other income transfers are divided into unemployment benefits and assistance, educational and study grants and social welfare assistance. The most important of these transfers was unemployment insurance, which in 1971 covered 55 percent of employees. Unemployment insurance benefits are paid out of unemployment funds operating in connexion with the labour organizations in accordance with the rules of these funds. In practice, however, a daily allowance

corresponding to the upper limit determined on a national scale is generally paid. The total sum paid in unemployment benefits and assistance in 1971 corresponded to about 0.2 percent of the GDP.

Other income/expenditure (net) also influences the households' disposable income. This batch is considered to include the remaining income transfers, which were not included with the ones listed in the foregoing, those defined as being channelled through the public sector. Of these transfers, the most important included payments to non-profit organizations and capital transfers.

We get *disposable income* subtracting direct taxes from factor income and adding into it income transfers and other income/expenditure.

Of the *social services*, only those on which the 1971 household survey provided data were covered by the study. These benefits were defined as social goods and not, for example, as social services, the reason being that they also include interest subsidies. A large part of the range of services provided by the public sector remained outside the scope of the study. These consisted for the most part of purely collective services such as public administration, law and order and defence. It was possible to ascertain the incidence of social goods only on the basis of the 1971 household survey. In that survey, the portion of the costs of producing the services in question not paid by the household itself or for which it receives no compensation is used as a measure of the services' value. The benefit received by a household was obtained by multiplying the measure of this value, the net benefit, by the frequency of use. There were 40 different types of services, which were grouped into four categories: educational goods, health care goods, recreational services and social welfare benefits. Educational and health care goods together accounted for 89 percent of the total value of these categories. In 1971 about 3.6 percent of the GDP was spent on educational goods and about 2.3 percent on health care goods. About half of the total funds spent on educational goods went to elementary schools, which are compulsory and completely maintained out of public funds. Approximately 90 percent of the funds spent on health care goods were used in hospitals. Hospitals in Finland are, with a few exceptions, completely maintained out of public funds.

Indirect taxes included turnover tax, customs duties, excise taxes and the social security contributions paid by employers. The employers' social security contributions have been included with indirect taxes, since an econometric study shows that they are passed on to prices[3]. The quantitatively most important indirect taxes in 1971 were turnover tax at 6.9 percent of the GDP, excise duties at 5.6 percent and the employers' social security contributions at 5.2 percent of the GDP. Corporation income tax was not included in the survey. The importance of this tax is not great in Finland, since in 1971 it yielded only about 1.7 percent of the GDP.

The amount of indirect taxes has been estimated only with respect to the 1971 household survey. This was done using the input-output table for 1970. The approximately 600 consumption items included in the household survey have been grouped into 84 categories, which correspond to the branches of industry of

[3]Suominen, Risto: "Työnantajan sosiaaliturvamaksun ja yritysveron siirtymä Suomessa vv. 1961–1972." *Sosiaali–ja terveysministeriön tutkimusosasto*, julkaisuja 2/1976, pp. 85–86.

the input-output table. Acting on the assumption that at each stage of production businesses transfer indirect taxes in their entirety onto prices and that industries use intermediate input in proportion to their overall output, the amount of the accumulated indirect tax has been calculated.[4] The overall total amount of indirect tax contained in the final price of the product has thus been worked out.

4. Vertical Redistribution

The decile distribution can be carried out in four different ways: on the basis of both factor income and disposable income either per household or per capita.[5]

TABLE 2

Percent Distribution of Factor Income and Disposable Income According to Decile Groups in 1971

		Deciles										
		1	2	3	4	5	6	7	8	9	10	Av/Fmk
1. Deciles ordered by per capita factor income in household												
Factor income per capita	(A)	0.5	2.4	4.1	5.8	7.3	9.0	11.0	13.5	17.2	29.2	6,554
Disposable income per capita	(B)	6.0	5.6	5.7	6.6	7.7	8.7	10.2	12.0	14.8	22.7	6,051
2. Deciles ordered by per capita disposable income in household												
Factor income per capita	(A)	2.4	3.6	4.7	5.8	7.1	8.7	10.5	13.2	16.9	27.1	6,554
Disposable income per capita	(B)	3.0	4.9	6.0	7.0	8.0	9.1	10.5	12.4	15.2	23.9	6,051
3. Deciles ordered by factor income in household												
Factor income in household	(A)	0.3	2.0	4.4	6.2	7.9	9.6	11.5	13.7	16.9	27.5	18,760
Disposable income in household	(B)	3.4	4.7	5.8	7.0	8.4	9.6	11.0	12.7	15.1	22.3	17,012
4. Deciles ordered by disposable income in household												
Factor income per capita	(A)	1.1	2.8	4.8	6.3	7.9	9.6	11.4	13.4	16.4	26.3	18,760
Disposable income per capita	(B)	2.3	4.2	5.7	7.0	8.4	9.7	11.2	12.9	15.4	23.2	17,012

The redistribution of income seemed most marked when the decile distribution was done on the basis of factor income per person and least marked when it pertained to disposable income per household. The difference between these two extremes in the amount of redistribution was considerable. Redistribution appeared clearly more marked when deciles formed on the basis of factor income were used than when a decile distribution on the basis of disposable

[4]Suominen, Risto: *The Incidence of Social Transfers.* Official Statistics of Finland, Special Social Studies No. XXXII:51. Helsinki 1977. (In Finnish, with English summary). Appendix 2.

[5]When the decile distribution has been formed on the basis of income calculated per capita and the decile shares are examined, the per capita income of the household is still used as the unit. Here, one is concerned with a kind of estimated decile shares and not with the percentage shares of the incomes really received by the households placed in the deciles. In order to arrive at the latter, the differences in size of the households placed in the deciles should be considered after the decile distribution has been done. However, that has not been done in this study, since the per capita figures as such better reflect the households' potential for consumption and also the differences between them. However, the Central Statistical Office of Finland has put out breakdowns calculated in this way (Finnish Survey 1976). When calculation is done in this manner the distribution of income naturally seems more even, since the large households are located in the lower end of the decile scale formed on the basis of per capita income.

income was employed, regardless of whether income was per capita or per household. Nevertheless, whatever mode of decile formation was used, income distribution was always more even in the case of disposable income than factor income. Of these, the factor income per capita decile formation method was found to be the best for three reasons: firstly, figures calculated per capita reflect the consumption potentials of households better than figures calculated per household. Secondly, redistribution influences disposable income, whereby the decile distribution carried out on the basis of disposable income cannot serve as the point of departure for examining the redistribution of income. Thirdly, the specific intention with income transfers is to attempt to alter the distribution of factor income.

Of the income transfers, pensions clearly had a levelling effect on income differences. Pensions were very strongly focused on households in the lower end of the income distribution scale, and their amount declined towards the top of the scale, except in the topmost deciles, which received somewhat more of these transfers than households in the deciles immediately below them. The income levelling effect of pensions is very understandable in the light of the fact that the lower end of the income distribution scale contained an abundance of pensioner households with small factor incomes, and after all the income distribution scale is based expressly on factor income. The average number of persons aged over 65 in the households also diminished in step with the income distribution scale.

With the exception of pensions, the other income transfer categories did not appear to have a clearly levelling influence on income distribution, which perhaps is due to the fact that means tested income maintenance systems quantitatively have only a minor role within these categories of income transfer systems. The incidence of family policy transfers was most strongly on those deciles containing households with most children. Thus households with average incomes or below average on the income distribution scale benefited most from those transfers.

Transfers connected with health care were greatest in the lower end of the income distribution scale, because this was where a large number of pensioner households were situated. These transfers did not, however, markedly level income differences since their incidence was quite equally divided between the different deciles, except those at the extreme ends of the income distribution scale. However, the households included in the decile with the highest incomes received relatively more transfers connected with health care than the households in the six deciles immediately below this.

The incidence of the other transfers was broadly the same as that of transfers connected with health care. However, households belonging to the lowest decile of all received relatively fewer other transfers than transfers connected with health care. This stemmed from the fact that the decile included a large number of pensioner households, which did not receive unemployment benefits and assistance to the same extent as did the households in the deciles immediately above it in the income distribution scale.

Direct taxation was another factor which, like pensions, clearly levelled income differences. This levelling effect was of course due to the progressive nature of income tax. The households in the topmost decile paid relatively more direct taxes than their share of factor income would have implied. However, the

TABLE 3

PERCENT DISTRIBUTION OF TRANSFERS, DIRECT AND INDIRECT TAXES AND BENEFITS ATTAINED BY THE USE OF SOCIAL GOODS IN 1971. DECILE GROUPING ORDERED BY FACTOR INCOME PER CAPITA IN HOUSEHOLD

	Deciles										
	1	2	3	4	5	6	7	8	9	10	Fmk/capita
Factor income	0.5	2.4	4.1	5.8	7.3	9.0	11.0	13.5	17.2	29.2	6,554
Direct taxes	1.1	1.9	2.5	3.9	5.8	7.5	10.1	12.7	17.6	36.9	−1,501
Pensions	38.4	22.5	10.4	6.2	6.4	4.2	4.0	2.4	2.6	2.9	767
Family policy transfers	5.7	10.8	15.2	15.1	13.4	13.1	10.0	7.5	5.4	3.8	72
Transfers connected with health care	17.1	13.0	11.1	9.3	9.4	6.4	7.3	7.6	8.8	10.0	159
Other transfers	10.6	14.9	12.2	11.0	8.6	8.2	9.0	8.2	6.6	10.7	62
Other incomes/outlays (net)	24.3	4.7	−5.7	−5.0	−8.8	−11.2	−3.7	−13.2	−18.9	−62.3	−62
Disposable income	6.0	5.6	5.7	6.6	7.7	8.7	10.2	12.0	14.8	22.7	6,051
Social goods	10.2	12.4	12.0	11.3	10.5	10.7	9.4	8.6	7.3	7.6	678
Indirect taxes	6.3	5.6	6.4	6.9	8.0	9.3	11.1	11.8	14.6	20.0	−1,006
Consumption	7.3	6.6	6.8	7.3	8.1	9.2	10.3	11.2	14.0	19.2	5,459
Number of households	905	905	905	905	905	906	906	906	906	906	
Size of household in average	2.2	3.6	4.2	4.0	3.8	3.6	3.3	2.9	2.5	2.0	
Members over 65 years in household in average	0.9	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	
Members under 16 years in household in average	0.4	1.2	1.6	1.4	1.3	1.1	0.9	0.6	0.5	0.3	

TABLE 4

PERCENT DISTRIBUTION OF TRANSFERS AND DIRECT TAXES IN 1966. DECILE GROUPING ORDERED BY FACTOR INCOME PER CAPITA IN HOUSEHOLD

	Deciles										
	1	2	3	4	5	6	7	8	9	10	Fmk/capita
Factor income	0.1	2.1	3.8	5.4	7.0	8.8	10.9	13.4	17.4	30.9	3,788
Direct taxes	0.1	1.5	2.5	4.2	5.5	7.5	9.8	12.9	18.2	37.8	−701
Pensions	29.3	27.2	8.7	9.7	6.0	3.8	5.1	2.3	3.3	4.6	353
Family policy transfers	4.2	13.6	17.5	12.7	12.8	10.9	10.2	7.5	6.1	4.5	60
Transfers connected with health care	7.2	15.4	10.1	10.5	8.4	7.2	4.9	8.4	14.4	13.1	23
Other transfers	11.2	13.0	11.7	11.9	7.6	15.2	9.0	4.3	6.2	9.9	27
Disposable income	3.2	5.2	5.0	6.3	7.3	8.6	10.4	12.2	15.5	26.1	3,655
Number of households	308	308	308	308	308	308	308	308	308	311	
Size of household in average	2.6	4.4	5.0	4.4	4.3	3.9	3.7	3.3	2.9	2.4	
Members over 65 years in household in average	0.5	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	
Members under 16 years in household in average	0.6	1.9	2.1	1.6	1.4	1.2	1.2	0.7	0.5	0.4	

households that belonged to the lowest end of the income distribution scale in 1971 also paid more direct taxes than their share of the factor income would have warranted. This phenomenon deviating from the progressiveness of direct taxation stemmed from the fact that, in spite of the smallness of their factor income, these households paid municipal taxes, social security contributions and other compulsory payments.

Indirect taxes are regarded as regressive. This idea is founded on the fact that propensity to consume decreases with income. This being the case, indirect taxes account for a larger proportion of the incomes of low-income groups than of high-income groups. According to this study, indirect taxes accounted for a somewhat greater proportion of the disposable incomes of low-income groups than of high-income groups. In contrast, compared with consumption expenditure, the high-income groups paid relatively more indirect taxes than the low-income groups. Thus indirect taxes were regressive with respect to disposable income; but not in relation to consumption.

Of the total value of social goods, health-care services and educational goods together accounted for about 89 percent. Thus the incidence of these two factors also determined the incidence of social goods in practice. Health services are most used by aged persons due to their poor standard of health. Since the lower end of the income distribution scale contained most aged persons, the households in this end of the scale also used these services most.

The incidence of educational goods, in contrast, depends essentially on the number of persons of schoolgoing or studying age in the households at various income levels. Here, the benefit obtained from using these services was greatest for households of average or below average income. Households in higher income groups are in Finland proportionally the greatest utilizers of higher education and thus they receive greatest benefits per schoolgoing person, but there are two reasons why, in spite of this fact, households of average or below average income received greatest benefits: firstly decile grouping was made according to per capita factor income, which means that households with children move downwards in the income distribution scale compared to households with no children and secondly the total used for education on university level represents only some one tenth of the money used for education by public sector. Thus the total benefit derived from the use of social goods was slightly greater in the lower end of the income distribution scale than in its upper end.

In Table 5 the incidence per household is examined, so that for the sake of comparison one can see how the incidence of the various income transfers, taxes and social goods appears when the calculation method is changed.

Table 5 shows that the relation between factor income and size of household is very obvious. In the highest-income deciles the average household size and number of children aged under 16 was greatest and correspondingly the average size of household and number of children aged under 16 was clearly smaller in the lowest-income deciles than in the other deciles. On the whole, the differences that occurred when the examinations were carried out on a per capita basis and per household were quite slight. There were clear changes in the incidence of family-policy transfers, transfers connected with health care and of social goods when the examination was carried out on a per household basis. The benefit

TABLE 5

PERCENT DISTRIBUTION OF TRANSFERS, DIRECT AND INDIRECT TAXES, AND BENEFITS ATTAINED BY THE USE OF SOCIAL GOODS IN 1971. DECILE GROUPING ORDERED BY FACTOR INCOME IN HOUSEHOLD

	Deciles										
	1	2	3	4	5	6	7	8	9	10	Fmk/household
Factor income	0.3	2.0	4.4	6.2	7.9	9.6	11.5	13.7	16.9	27.5	18,760
Direct taxes	0.6	1.7	3.1	4.5	6.3	8.1	10.1	13.2	17.3	35.1	−4,177
Pensions	28.9	24.1	10.6	7.2	7.1	6.0	4.6	3.8	4.7	3.0	1,594
Family policy transfers	2.4	5.8	9.1	11.7	12.5	12.1	11.7	11.6	11.3	11.8	313
Transfers connected with health care	9.8	14.5	11.8	8.5	9.2	9.3	9.5	8.4	9.4	9.6	420
Other transfers	7.0	15.1	14.1	12.7	12.7	9.6	7.9	7.2	5.8	7.9	275
Other incomes/outlays (net)	8.7	−1.5	−4.0	−10.2	−5.1	−16.2	−20.9	−5.6	−20.3	−24.9	−138
Disposable income	3.4	4.7	5.8	7.0	8.4	9.6	11.0	12.7	15.1	22.3	17,047
Indirect taxes	3.7	5.7	6.4	7.2	9.1	10.2	11.3	12.0	15.2	19.2	−2,978
Social goods	4.1	8.2	9.0	9.3	10.0	11.1	11.4	11.2	12.3	13.4	2,475
Number of households	905	905	905	905	905	906	906	906	906	906	9,055
Size of household in average	1.6	2.5	2.7	3.0	3.3	3.5	3.6	3.7	4.0	4.2	3.2
Members under 16 years in household in average	0.1	0.5	0.7	0.9	1.0	1.2	1.2	1.2	1.2	1.3	0.9
Members over 65 years in household in average	0.8	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2

received through these appears to become clearly more favourable to higher-income groups. This stems from the fact that changing over from a per capita analysis to one on a per household basis strongly altered the demographic structure of the deciles. However, in view of this strong structural change, the changes in the incidence of income transfers were astonishingly minor. Since the greatest part of the income transfers is paid as pensions and the morbidity of the members of pensioner households leads to them using the health services to a greater than average extent, the pensioners' location in the income distribution scale has quite a substantial influence on the incidence of transfers and services. According to both decile distributions, the pensioner households were principally located towards the lower end of the income distribution scale, whereby this fact mitigated the effects of the incidence caused by the changes in demographic structure.

These results of redistribution studies in Finland agree in their main features with the results obtained elsewhere when incomes were calculated per household. In a consumption-based study in Canada for 1969 it was perceived that the activities of the public sector were on the whole favourable to low-income families.[6] The support given by the income transfers paid by the public sector was strong in the cases of families belonging both to the lowest-income categories and the highest-income categories of the income distribution scale.[7]

A study has been carried out in Great Britain on the basis of the 1974 household survey.[8] According to this study, the incidence of family allowances fell most strongly on households belonging to the upper end of the income distribution scale, that of pensions on households in the lower end of the scale, the incidence of sickness insurance and accident insurance benefits fell on to the middle section of the scale, direct taxes levelled income differences, indirect taxes were on the whole regressive with respect to disposable income, and high-income households used the social services more than did low-income households.

Two studies in which questions of incidence were examined have been carried out in Sweden. These stem from 1970 and 1972.[9] Franzen, Lövgren and Rosenberg examined income transfers, taxation and social services as percentage shares of taxable income and compared it with a hypothetical proportional system. The study revealed that all the components of the Swedish system were more advantageous to low-income groups than a proportional system.[10] In the other study carried out in Sweden, income transfers and direct taxes were examined as percentage shares of disposable income. Both income transfers and

[6]Dodge, David A.: "Impact of tax, transfer, and expenditure policies of government on the distribution of personal income in Canada." *The Review of Income and Wealth*, vol. 21, 1975/1, pp. 3–5.

[7]*Ibid.*, pp. 25–26.

[8]Nissel, Muriel, and Peretz, Jane: "Effects of taxes and benefits on household income, 1974." *Economic Trends*. February 1976.

[9]Franzen, Thomas, Lövgren, Kerstin and Rosenberg, Irma: "Redistributional Effects of Taxes and Public Expenditures in Sweden". *The Swedish Journal of Economics*, vl. 77. 1975/1.
Swedish survey on relative income differences 1972. National Central Bureau of Statistics. Stockholm 1974.

[10]Op. cit., p. 46.

TABLE 6

NET INCIDENCE OF TRANSFERS IN 1971, Fmk/CAPITA. DECILE GROUPING ORDERED BY FACTOR INCOME PER CAPITA IN HOUSEHOLD

	Deciles									
	1	2	3	4	5	6	7	8	9	10
Pensions	2,549	1,346	369	−13	−103	−360	−496	−736	−972	−1,629
Family policy transfers	−5	36	65	60	42	33	1	−28	−67	−186
Transfers connected with health care	196	138	94	48	31	−13	−54	−75	−112	−233
Other transfers	27	50	38	26	11	−2	−18	−15	−45	−82
Total	2,767	1,570	566	121	−19	−342	−567	−854	−1,196	−2,130
Factor income	359	1,568	2,710	3,776	4,804	5,900	7,178	8,836	11,285	19,106
Disposable income	3,610	3,390	3,456	3,950	4,671	5,273	6,175	7,278	8,963	13,734

direct taxes appeared to have a levelling effect on income differences according to this examination.[11]

The Nissel–Peretz study is the one most comparable with this and its results are also similar to ours. Differences in analysis methods (Nissel–Peretz used the distribution of income in pounds sterling, whereas a decile distribution was used in this study) lead, however, to the comparison being rather summary. In studying the net incidence of income transfers one must establish the incidence of the transfer system's financing. On the basis of laws and other regulations, the breakdown of the financing between the State, municipalities, insured persons and employers was studied. When this had been ascertained it was assumed that the State and the municipalities financed the income transfers in question in the same proportion as their budget was generally financed from various sources. This assumption is made in empirical studies in general, although it is somewhat erroneous. The focus of financing on the various sources ought to be studied as marginal, but this is difficult to do in practice.

The fact that the highest-income households paid more than they received and vice versa was a general feature of the transfers' net incidence. The households belonging to the four lowest-income deciles received more than they paid in the form of income transfers, and the households belonging to the six deciles with the highest incomes paid more than they received. All in all, the examination of the income transfers' net incidence gave little additional information concerning what has already been apparent on the basis of the gross incidence.

Redistribution of income changed the relative position of households in the income distribution scale.

In 1971 only 32.7 percent of households were placed in the same decile where both factor income and disposable income were concerned; the corresponding figure in 1966 having been 42.2 percent. This difference probably

TABLE 7

NUMBER OF HOUSEHOLDS IN DECILES BOTH ACCORDING TO FACTOR INCOME AND DISPOSABLE INCOME IN 1971

		Deciles ordered by factor income/capita										No. of households
		1	2	3	4	5	6	7	8	9	10	
Deciles ordered by disposable income/capita	1.	253	385	239	15	7	2	0	2	0	2	905
	2.	142	168	336	244	11	3	1	0	0	0	905
	3.	135	100	132	322	204	8	3	1	0	0	905
	4.	133	60	76	149	337	141	6	2	1	0	905
	5.	87	64	48	80	155	387	80	4	0	0	905
	6.	66	49	22	41	98	210	382	31	4	3	906
	7.	47	28	19	24	48	96	286	340	15	3	906
	8.	22	19	11	18	23	42	105	387	273	6	906
	9.	13	15	10	6	12	10	29	119	509	183	906
	10.	7	17	12	6	10	7	14	20	104	709	906
Number of households		905	905	905	905	905	906	906	906	906	906	9,055

[11]Op. cit., p. 49.

stemmed from improvements in social security during the period between the control years, since the incidence of direct taxation was approximately the same in both years. Income transfers caused changes in households' relative positions in the income distribution scale from the lowest deciles right up to the highest-income end of the scale, whereas the changes caused by taxation were smaller. The changes in the relative position of households belonging in the lower end of the income distribution scale, when factor income was the criterion, to the upper end of the scale as measured by disposable income was due to pensions. These households received large employment pensions, which are related to earnings. Thus these households actually tended to remain at the level that they had had during their active earning period.

5. Horizontal Redistribution

Horizontal redistribution was examined only on the basis of the 1971 household survey. The *socio-economic* status of the household was defined according to the person heading it.

The following features were perceptible in the redistribution on the basis of socio-economic status:

1. The direct taxation burden on farm households was lighter than on other households, which may be due to the uncertainty in estimating agricultural income.
2. Households headed by persons not in gainful employment received an abundance of income transfers connected with pension policy and health care, which was due to the fact that these households included a large number of pensioners.
3. Relative to the average number of children they contained, farm households received fewer family-policy and other income transfers than other households. The smallness of the family-policy transfers was due both to the fact that farm households did not receive family housing subsidies at all and to the fact that farm households received fewer advances of maintenance payments than other households; this was due to the low divorce rate among the agricultural population.
4. There were no considerable differences between the socio-economic groups as regards the benefits obtained from social goods. However, households headed by persons not gainfully employed used the health services to a greater extent than the other households, but availed themselves of educational goods to a lesser extent. Thus these two opposing factors adjusted the total benefits received by the socio-economic groups to an almost equal level in these categories.

The central features of redistribution on the basis of *the age of the head of household* were:

1. Direct taxation was relatively heaviest for households headed by persons aged over 65. These households paid a greater proportion of their factor income in municipal tax than did the other households.

TABLE 8

INCIDENCE OF TRANSFERS, DIRECT AND INDIRECT TAXES AND BENEFITS ATTAINED BY THE USE OF SOCIAL GOODS ACCORDING TO SOCIO-ECONOMIC STATUS OF THE HOUSEHOLD IN 1971, Fmk/CAPITA

	Economically Inactive	Unskilled Manual Workers	Farmers	Skilled Manual Workers	Managers and Salaried Employees	Employers and Own-Account Workers except Farmers	Average
Factor income	1,941	6,353	4,387	7,347	11,054	8,268	6,554
Direct taxes	−536	−1,251	−575	−1,564	−2,953	−2,298	−1,501
Pensions	3,088	225	435	121	185	252	767
Family policy transfers	26	90	65	81	89	90	72
Transfers connected with health care	299	122	141	137	113	113	159
Other transfers	55	58	21	58	32	44	44
Other incomes/outlays (net)	84	−50	−36	−96	−65	−209	−44
Disposable income	4,957	5,547	4,438	6,084	8,455	6,260	6,051
Indirect taxes	−792	−923	−744	−1,082	−1,462	−1,167	−1,006
Social goods	749	639	671	617	711	635	678
Number of households	1,681	1,227	1,719	1,900	2,114	414	9,055
Size of household in average	2.1	3.4	4.2	3.3	3.0	3.8	3.2
Members under 16 years in household in average	0.2	1.1	1.2	1.1	1.0	1.3	0.9
Members over 65 years in household in average	0.8	0.1	0.3	0.1	0.0	0.1	0.2

TABLE 9

INCIDENCE OF TRANSFERS, DIRECT AND INDIRECT TAXES AND BENEFITS ATTAINED BY THE USE OF SOCIAL GOODS ACCORDING TO THE AGE OF THE HEAD OF THE HOUSEHOLD IN 1971, Fmk/CAPITA

	Age of the Head of the Household						
	−24	25–34	35–44	45–54	55–64	65–	Average
Factor income	7,725	7,847	7,002	7,351	6,349	2,552	6,554
Direct taxes	−1,406	−1,809	−1,652	−1,647	−1,481	−676	−1,501
Pensions	104	102	180	331	1,009	3,227	767
Family policy transfers	53	126	125	59	21	6	72
Transfers connected with health care	95	78	97	182	291	186	159
Other transfers	54	39	40	55	57	19	44
Other incomes/outlays (net)	23	−34	−62	−84	−45	6	−44
Disposable income	6,648	6,349	5,730	6,247	6,201	5,320	6,051
Indirect taxes	−1,351	−1,196	−929	−995	−939	−776	−1,006
Social goods	657	566	892	754	571	570	678
Number of households	572	1,856	1,841	1,830	1,706	1,250	9,055
Size of household in average	2.2	3.3	4.2	3.7	2.8	2.1	3.2
Members under 16 years in household in average	0.4	1.3	1.8	1.0	0.3	0.1	0.9
Members over 65 years in household in average	0.0	0.1	0.1	0.1	0.1	1.2	0.2

2. Pension transfers increased as the age of the head of household rose and were clearly greatest for households headed by persons over 65.
3. Transfers connected with health care increased as the age of the head of household grew, but not in the case of households headed by persons aged over 65. These households belonging to the highest age group did not receive any sickness insurance per diem payments as compensation for loss of earnings.
4. The benefit derived from the use of social goods was greatest in the middle-aged groups where there were large numbers of children of schoolgoing age. In the most aged groups the proportion of the total of social goods accounted for by the health services increased while the proportion of the educational goods declined.

The principal redistribution effects with respect to *size of household* were:

1. Small households received large amounts in transfers connected with pension policy and health care. This was because most of the small households were populated by pensioners.
2. The benefit derived from family-policy transfers and the use of social goods increased consistently as the number of persons in a household rose, since there was naturally a strong correlation between the number of children and the size of the household.
3. The burden of direct taxation declined consistently when the number of persons in a household exceeded four, which obviously stemmed from tax deductions for children.

6. Final Comments

The selection of income to be used as the criterion in carrying out the decile grouping substantially influences the picture that is obtained of the magnitude of redistribution. If factor income is used as the criterion in carrying out the decile grouping, the redistribution appears substantially greater than when disposable income is used as the criterion. On the other hand, whether income is calculated per capita or per household does not substantially influence the overall picture of redistribution obtained. The breakdown of factor income seems to have remained practically the same in Finland in the interval between the study years 1966 and 1971. In contrast, redistribution seems to have had the strongest effect in levelling income differences in the latter year. The factors affecting redistribution in Finland can be divided into three categories according to their progressiveness: direct taxation and pensions were clearly more progressive than the others, other transfers and social goods were also progressive, while indirect taxation was mildly regressive.

The fact that income transfers other than pensions were only mildly progressive stems from the objectives of these transfers. If, for example, one examines two social benefits quite important in Finland, child allowances and sickness insurance per diem allowances, one observes these other goals. The goal of the child allowance is to equalize costs caused by children in such a way that these costs are borne also by families without children. The only criterion governing

TABLE 10

INCIDENCE OF TRANSFERS, DIRECT AND INDIRECT TAXES AND BENEFITS ATTAINED BY THE USE OF SOCIAL GOODS ACCORDING TO THE NUMBER OF MEMBERS IN HOUSEHOLD IN 1971, Fmk/CAPITA

	Number of Members in Household							
	1	2	3	4	5	6	7–	Average
Factor income	8,091	7,092	7,002	6,321	5,209	4,014	3,175	6,554
Direct taxes	−1,969	−1,689	−1,550	−1,455	−1,124	−750	−524	−1,501
Pensions	1,734	1,248	464	208	200	264	253	767
Family policy transfers	4	29	74	107	129	141	161	72
Transfers connected with health care	229	221	150	102	93	85	95	159
Other transfers	62	43	45	43	27	31	35	44
Other incomes/outlays (net)	−82	−13	−54	−27	−59	−50	−10	−44
Disposable income	8,069	6,931	6,131	5,299	4,475	3,735	3,185	6,051
Indirect taxes	−1,302	−1,145	−1,039	−918	−800	−697	−555	−1,006
Social goods	537	513	593	767	917	989	1,109	678
Number of households	1,572	2,065	1,839	1,719	944	499	416	9,055
Members under 16 years in household in average	0.0	0.1	0.6	1.4	2.0	2.7	3.7	0.9
Members over 65 years in household in average	0.3	0.4	0.2	0.1	0.2	0.3	0.4	0.2

payment of the child allowance is that the child is under 16. This being the case, the incidence of child allowances depends on how children aged under 16 are distributed among households of different income levels. The goal of the sickness insurance per diem allowances is to compensate for loss of earnings through sickness. Up to a certain maximum level, the amount of this per diem allowance is relative to earnings; i.e. the higher the earnings the higher the per diem allowance. Thus the incidence of sickness insurance per diem payments depends both on the average morbidity in households belonging to different income levels and on the amount of earned income.

It is difficult to assess how good a picture this study gives of the redistribution that has actually occurred and how the redistribution has changed. Danziger–Plotnick refer to, among other things, the following two uncertainty-producing factors.[12]

1. Redistribution has a lowering effect on factor income, whereby the net influence of redistribution is smaller than it seems when examined in the traditional manner. The greater the proportion of GDP represented by redistribution the greater this positive error is.
2. Demographic changes increase factor income differences.

According to this study the levelling effect of redistribution was stronger in 1971 than in 1966. During the former year the proportion of redistribution of GDP was greater than during the latter. Thus at least a part of this levelling impression was due to the way redistribution was studied.

Demographic changes have been strong in Finland, since according to census figures the number of households increased by 15.5 percent between 1960 and 1970 and the average number of persons per household dropped from 3.3 to 3.0. In addition to this, the structure of the economy has also undergone powerful change, since the proportion of the labour force employed in primary production dropped from 28.9 percent in 1966 to only 13.8 percent in 1976.[13] In this study, the control years 1966 and 1971 were so close to each other that demographic changes, powerful as they were, did not substantially affect the breakdown of factor income, since this was observed to remain quite stable.

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