



Social Transfers in Kind in the United Kingdom and Finland: Micro-level Measurement and Distributional Impact

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Social Transfers in Kind (STIK) are important to both understanding economic well-being and measuring the redistribution of income through the tax and benefits system. However, the challenges of measurement mean they are often excluded from analysis of household incomes. Estimates of the distributional impact of STIK for the UK and Finland, representing different welfare regimes, have previously been reported in cross-national studies (e.g. OECD, 2012). However, the current paper presents work carried out at the national level, which has allowed the production of more detailed estimates, through imputing the value of benefits in kind to each country's Household Budget Survey. The paper describes the methods and the distributional impacts based on country level sources, and contrasts these with the estimates available from the cross-national studies.

Keywords: social transfers in-kind, income distribution, poverty

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1. Introduction

The Canberra Group Handbook on Household Income Statistics (2011) defines social transfers in kind (STIK) as goods and services provided by government and non-profit institutions that benefit individuals but are provided free or at subsidised prices. The Handbook recommends that where possible, it is desirable to add the value of social transfers in kind to household disposable income to create a measure of adjusted disposable income.

Taking into account STIK is particularly important when the purpose of analysis is to make cross-country comparisons of the distribution of income and/or poverty. This is because in one country (A), certain services may be largely provided by the state, free at the point of use, whereas in Country B it may be necessary to pay for those services directly. This means that, all other factors being equal, someone with the same disposable income in Country A would have a higher standard of living than in Country B.

Social transfers in kind are also very important for measuring economic well-being within countries. Since one of the major policy aims in this area is often to make access to important services more equal, the distribution of STIK is generally progressive. Therefore, to obtain a complete picture of the redistribution of household income, STIK, ideally along with indirect taxes, should be taken into account.

Despite their value for such analysis, in practice they are commonly excluded due to the challenges associated with measurement. This paper examines the measurement and distribution of in-kind benefits in two countries that do produce distributional analysis of income including STIK, the United Kingdom and Finland. These countries represent different welfare regimes, with different distributions of cash- and near-cash income.

Estimates of the distributional impact of STIK for these countries have previously been reported in cross-national studies (e.g. OECD, 2012; and Aaberge, Langorgen & Lindgren, 2013). The current paper presents work carried out at the national level, which has allowed the production of more detailed estimates, through imputing the value of benefits in kind to each country's Household Budget Survey.

The primary aim of this paper is to describe the methods and the distributional impacts based on country level sources, and to contrast these with the estimates available from the aforementioned cross-national studies. We start by reviewing the structure and volume of social transfers in kind in the UK and Finland, based mainly on macro data from National Accounts. We then describe the country-level methodologies to estimate social transfers in kind at micro level, starting with a comparison of the extent of transfers that have been imputed. For instance, the UK has estimated in-kind benefits from education, health, housing, and transportation while Finland has covered education, health, and social care. Due to institutional arrangements of social benefits, some inclusions/exclusions might be important when comparing the two countries. We therefore discuss the identification of the beneficiaries, along with the data and techniques used to value the benefits received.

Finally, the paper turns to the distributional impact of STIK and their impact on poverty rates, considering the national results and contrasting these with the available cross-national experiments and studies.

2. Volume and structure of STIK in the UK and Finland

We begin by reviewing the types of in-kind transfers that have been included in the Household Budget Surveys. A common benchmark for both countries is the System of National Accounts (SNA), where one can expect to have a higher degree of comparability, both conceptually and operationally, than in non-harmonised national survey sources. The SNA defines social transfers in kind as goods and services provided by government and NPISHs to households either free or at prices that are not economically significant (SNA2010, paragraph 4.108). The SNA definition is in principle the same as in the guidelines for micro statistics, the Canberra Group Handbook of Income Statistics (2011, p.16). While there are other useful macro sources on in-kind benefits, the comparison here relies on National Accounts data only².

2.1 Aggregate measures of social transfers in kind in National Accounts and Household Budget surveys

In the SNA, the provision of goods and services can be based on non-market production (D631) or market purchases (D632)³ by the government units or NPISHs. The latter can be in the form of reimbursements of specific expenses or direct provision by the market producers but costs covered by the government units. They are financed by taxes, social contributions, other government income, or, in the case of NPISHs, by donations or property income.

In National Accounts, social transfers in-kind are included both in the extended income and consumption concepts. In consumption, STIK equals the difference between actual individual final consumption and household final consumption expenditure. Table 2.1.1 shows that, in Finland, the total value of social transfers in kind in 2012 was 35.6 per cent of household consumption, compared with 25.8 per cent in the UK.

On the income side, the value of social transfers in kind equals the difference between disposable and adjusted disposable income. The ratio of STIK to gross disposable income was around 31.3 per cent in Finland and 23.6 per cent in the UK. Based on the National Accounts figures, STIK per capita in 2012 was EUR 6,868 in Finland and EUR 4,933 in the UK. These figures suggest that, in terms of levels, social transfers in kind are more important in Finland compared to the UK. It should be noted that the adjusted disposable income figures are taken from Eurostat database, where household and NPISH sectors are not shown separately. This somewhat influences the comparison.

² There are several alternative cross-national sources for the value of benefits in kind. First, there is National Accounts and the related statistics on General Government Expenditure by Function (COFOG). The ESSPROS statistics describe social protection (which does not include education), and distinguish between cash benefits and benefits in kind. In addition, there are specific non-SNA based data sources. For example harmonised cost data on education can be found in the OECD education database

³ The transaction codes have been reversed in the SNA 2010 compared to ESA95.

Table 2.1.1. Social transfers in kind in National Accounts and the HBS, 2012, millions of euro.

NATIONAL ACCOUNTS			HOUSEHOLD BUDGET SURVEY		
	Finland	United Kingdom		Finland	United Kingdom
CONSUMPTION			CONSUMPTION		
Final consumption expenditure of households (national concept)	103,754	1,216,292	Household consumption expenditure	92,822	711,098
Actual individual final consumption	141,023	1,529,721	Actual final consumption	112,002	930,487
Social Transfers In Kind (STIK)	37,269	313,429	Social Transfers In Kind (STIK)	19,180	219,389
- <i>STIK % of household consumption</i>	35.9 %	25.8 %	- <i>STIK % of household consumption</i>	20.7 %	30.9%
INCOME (households and NPISH)			INCOME (households)		
Gross disposable income	119,084	1,329,022	Disposable income	97,385	998,041
Gross adjusted disposable income	151,561	1,595,382	Extended income	116,565	1,217,430
Social transfers in kind (received)	37,269	314,255	Social transfers in kind (received)	19,180	219,389
- <i>% of gross disposable income</i>	31.3 %	23.6 %	- <i>% of disposable income</i>	19.7 %	22.0%
Social transfers in kind (received-paid)	32,477	266,360			
- <i>% of gross disposable income</i>	27.3 %	20.0 %			

Note: National Accounts data taken from Eurostat database (retrieved 15 April 2014).

As can be seen from Table 2.1.1 above, based on 2012 figures, the share of STIK and its total value in both the Finnish and UK HBS is well below the National Accounts estimates. This is a typical result, and may stem from a number of factors, including differences in the items included, as well as estimation methods and survey sampling and non-sampling errors. However, the unadjusted micro-macro coverage rate of STIK is much lower in Finland (51.5 % vs. 70 %). In addition, based on the HBS, the STIK share of consumption is much higher in the UK, while based on National Accounts it is much higher in Finland. This is affected by the coverage rates of consumption without STIK, which is higher in Finland. Given these discrepancies, the next sections examine the coverage of STIK in both macro and micro sources in Finland and the UK.

2.2 Coverage of STIK in macro and micro sources in Finland

In the Annex, Table A1 provides details of the sub-components of the National Accounts social transfers in kind in the Finnish household sector (S14), breaking down the total of EUR 37,269 million shown in Table 2.1.1. This breakdown is only available from a national data source.

In the Finnish National Accounts, the value of social transfers in kind is the value of non-market output of central and local government in specified NACE-industries, namely education (Nace 85), health services (86), social services (87,88), culture (90-91) and sports and recreation (93). In addition, the total non market output across all industries of NPISHs and social insurance funds are included in STIK⁴. The non-market output is computed from bottom to top, i.e. valued as the sum of wages and salaries, employers' social contributions, depreciation, and intermediate consumption. Finally, the value of in-kind social benefits (D631K) is added to derive the value of actual individual consumption and adjusted disposable income.

In the Finnish Household Budget Survey, the definition of STIK covers education, healthcare and social services. The definition is therefore more restricted than in the Finnish National Accounts because it excludes culture, sports and recreation. In National Accounts, the HBS categories would cover 86 per cent of social transfers in kind in the household sector. The last row in the annex Table A1 shows the total National Accounts aggregate restricted to those items that in principle are covered in the Household Budget Survey,

Table 2.2.1 further shows the micro estimates of main categories of social transfers in kind in Finland in 2012, based on the HBS. Comparing to the restricted National Accounts definition, the HBS total (mEUR 19,180) covers 59.8 % of the macro estimate (mEUR 32,053). The coverage rate of education services is the highest, followed by health care (restricted to non market output and reimbursements of prescribed medicines), while it is much lower for social services. Importantly, the HBS only covers households in private households, which in particular affects the services used by the elderly. In general, it is likely that different valuation principles and sources play a major role in the differences. Examining the differences is, however, beyond the scope of this paper. As an example, the value medicine reimbursements is 82.4 per cent of NA total in the HBS, although it is based on the same register data (exactly matched to survey) as the NA value.

Since actual consumption approach is used for all categories, i.e. the values are imputed to households who actually use the benefit, the table also shows the number of households benefiting from the transfers. Nearly all households benefit from government provided services in Finland, largely because health care services are used by 95 % of households. In terms of the amounts, the total value of education is the most significant, whilst both the value of and the number of recipients of social services is much smaller than in education and health care services. We look at the details of each of the main categories later.

⁴ The latter essentially means administration expenses of institutions that administer direct cash and in-kind benefits accruing to households.

Table 2.2.1. Social transfers in kind in the Finnish Household Budget Survey 2012.

	Number of households receiving benefit	% of all households	Average per household receiving	Total sum, million euro	% of total HBS STIK	% of National Accounts total
Education	1,165,651	44.9 %	7,535	8,784	45.8 %	80.6 %
Healthcare	2,467,797	95.1 %	3,365	8,305	43.3 %	75.9 %*
- of which: reimbursements of prescribed medicines	2,322,539	89.5 %	462	1,074	5.6 %	82.4 %
Social services	394,105	15.2 %	5,305	2,091	10.9 %	33.5 %
Social transfers in kind, total	2,527,764	97.4 %	7,587	19,180	100 %	59.8 %**

* NA non-market output of healthcare services (NACE 86) + reimbursements of prescribed medicines

** Only education, health and social care, and reimbursements (see Table A1 in the annex)

Health care, education, and child- and elderly care are commonly included in the existing studies on social transfers in kind. Some studies (e.g. OECD, 2012) also have included social housing within STIK. This is not the case in either the Finnish National Accounts or HBS. One argument for this is that the rents these households pay cannot be considered as prices that are “free or economically insignificant”, as in the SNA definition of STIK, since the rent is expected to cover the production costs of the provider (such as municipalities).

Social housing has been imputed to the EU-SILC data, showing that the share of tenant households who do not pay full market rent is significant in Finland (around 11 per cent of all households based on EU-SILC⁵). Moreover, the value of publicly provided housing is an important aspect of housing policy. Nevertheless, for Finland the value and the distributional impact has been found small because the subsidized rents are not substantially below the estimated market values (see Törmälehto and Sauli, 2010). Given this, this study does not include benefit from social housing in STIK for Finland, and assumes that its distributional impact would be small.

2.3 Coverage of STIK in macro and micro sources in the UK

Table A2 in the Annex provides the breakdown of social transfers in kind from the UK National Accounts. For the household sector (S.14) the total published value of STIK in 2012 was EUR 393,232⁶. In table A2 this has been broken down by four components of non-

⁵ Tenants in municipal or student housing, based on EU-SILC 2012 (income reference year).

⁶ £251,313 million, based on an exchange rate of 1.23324

market output⁷ of general government in certain NACE-industries: Education (Nace 85), health services (86), social services (87,88), recreation and culture (90-93). As in Finland, the total non market output across all industries of NPISHs and social insurance funds are also included in STIK.

The Nace breakdowns for NPISH social transfers in kind are currently being reviewed and should be available for release in the 2016 release of the UK National Accounts Blue Book publication.

As in Finland, the definition of STIK used in micro analysis in the UK differs from the National Accounts one. The benefits in kind included in the UK analysis currently fall into five categories – education, healthcare, subsidies for housing, rail and bus travel and free school meals.

Like Finland, the UK HBS figures do not include recreation and culture, but additionally, the non-childcare elements of social care are excluded. The support which is given to parents in terms of free early education and childcare (570 hours a year in England for all 3 and 4 year olds, and some 2 year olds) is reflected within the pre-primary (nursery) figures for education related STIK. Other help with childcare costs in the UK either comes through the childcare element of Working Tax Credit, and/or Childcare Vouchers provided by an employer. Both of these are reflected in a household's disposable income.

As the HBS covers only private households, it is not possible to include one of the most important components of adult social care: residential care, which accounted for 44% (£7.5bn) of total spending on adult social care in England in 2012/13 (HSCIC, 2013).

Around 45% of expenditure on adult social care in England was on day and domiciliary care. Although this is included in the National Accounts measure of STIK, it is not currently included in micro analysis. This partly relates to the challenges associated with effectively allocating it to relevant households. Provision of adult social care by local authorities is means tested once an assessment of needs has taken place, and takes into account both income and savings and other assets.

It should be noted also that, in the UK, there are a number of different cash benefits that are paid to help individuals with the extra costs caused by long-term ill health or a disability, as well as provide assistance to those looking after someone with substantial caring needs. In 2012/13, total expenditure on (non-means tested) Disability Living Allowance, Attendance Allowance and Carers Allowance totalled £20.8bn in the UK. These and other related benefits are of course treated as current transfers received in UK income micro-statistics, and therefore included as part of disposable income.

Public transport subsidies and housing subsidies are not considered part of STIK within the UK National Accounts, though the benefits in terms of lower housing and travel costs that result from these subsidies are accounted for in UK analysis of the redistribution of income

⁷ For general government there is no non market element

through taxes and benefits (see Tonkin et al., 2014). In terms of size, these subsidies make up a small proportion of the total value of STIK included in the UK micro analysis, accounting for around 3% of the total by value (Table 2.3.1).

Table 2.3.1. Social transfers in kind in the UK Household Budget Survey 2012.

	Number of households receiving benefit	% of all households	Average per household receiving, euro	Total sum, million euro	% of total HBS STIK	% of National Accounts total
Education (including free nursery/ childcare hours for under 5s)	7,414,730	28.0%	10,956	81,239	37.0%	107.6%
- Of which free school meals	1,547,080	5.8%	1,020	1,578	0.7%	N/A
Healthcare	26,507,780	100.0%	4,954	131,332	59.9%	94.6%
Housing subsidies	4,537,620	17.1%	68	310	0.1%	N/A
Rail subsidies	4,370,820	16.5%	648	2,832	1.3%	N/A
Bus subsidies	14,515,030	54.8%	253	3,676	1.7%	N/A
Social transfers in kind, total (Education + Healthcare only)	26,507,780	100.0%	8,019	212,571	96.9%	99.2%
Social transfers in kind, total	26,507,780	100.0%	8,276	219,389	100.0%	N/A

* Only education and healthcare

Table 2.3.1 also shows the coverage of education and healthcare in the UK HBS data, as a percentage of the relevant National Accounts total. As can be seen, the coverage rate is relatively good for both forms of STIK. The differences between the HBS figures are likely to be due to a combination of factors, including methodological differences, but also survey sampling and non-sampling error.

3. Imputation of STIK to Household Budget surveys

In this section, we describe how the different forms of STIK are estimated in the Household Budget Surveys of the UK and Finland.

3.1 Education services

3.1.1 Education services in the UK

For education services, an 'actual consumption' approach is applied, in which an attempt is made to allocate the value of education services to households which directly benefit from those services. This approach relies upon information produced by various government departments and agencies on the cost per full-time equivalent pupil or student in maintained special schools, nurseries, primary schools (age 4-10/11), secondary schools (11/12-16/18), further education (post-16) institutions and universities.

Education policy in the UK is devolved, so separate estimates are produced for England, Scotland, Wales and Northern Ireland.

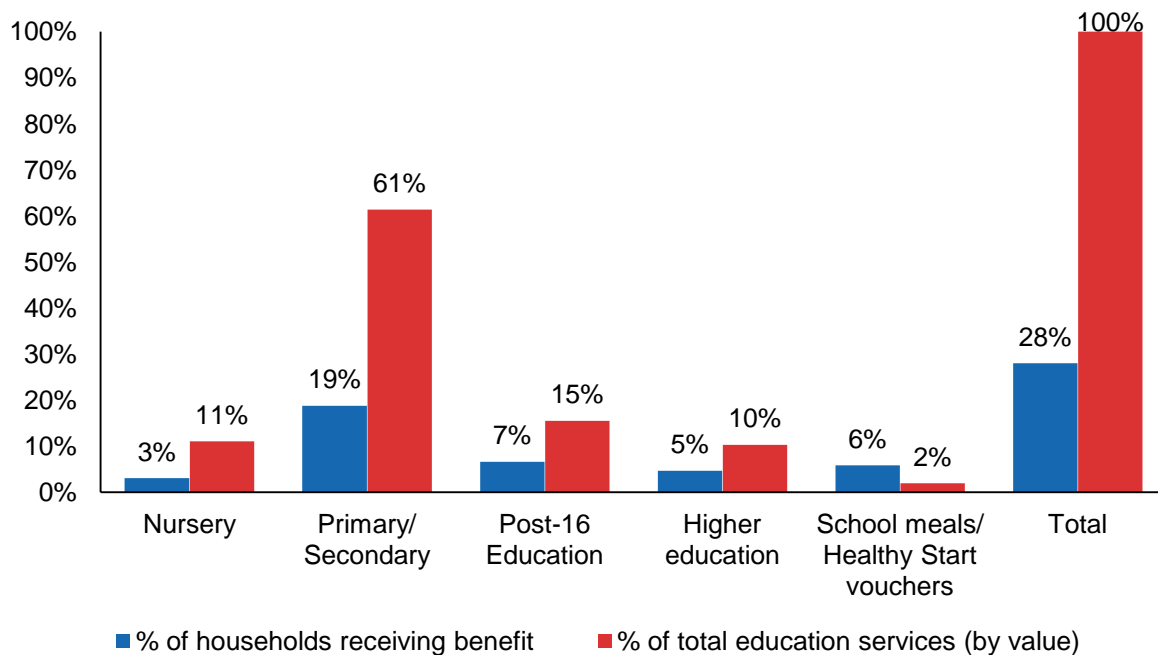
Compulsory school ages in England, Scotland and Northern Ireland are between 5 and 16 (4 and 16 in Northern Ireland), though most children in the UK start primary school age 4 in the September before their 5th birthday.

All areas of the UK offer some form of pre-primary education. For example, in England, all 3 and 4-year-olds are entitled to 570 hours of free early education or childcare a year. This is often taken as 15 hours each week for 38 weeks of the year. Some 2-year-olds are also eligible. This can be at private nurseries, play groups and child minders as well as nursery schools/classes within primary schools. In the HBS analysis this is treated as education (rather than childcare) regardless of the setting in which it's received.

Most children in England, Wales and Northern Ireland start secondary education at age 11 (12 in Scotland). In Figure 3.1.1.1 below, a distinction is made between the compulsory phase of secondary education (until age 16) and post-16 education. The latter generally takes place either within a school sixth form or a sixth form or further education (FE) college. There is just one overall estimate of spending for secondary school children available although it is acknowledged that the cost climbs steeply with the age of the pupil. Therefore, in this analysis, there is a split in the allocation of per capita expenditure on children between those aged 11 and 15 at the beginning of the school year, and those 16 and over attending a secondary school.

The value of the benefits attributed to a household depends on the number of people in the household recorded in the HBS as receiving each kind of state education (students living away from the household are excluded). No benefit is allocated for pupils attending private schools, those receiving home schooling or for nursery pupils under the age of three, who are not eligible for state funding.

Figure 3.1.1.1. Education services in the UK: households receiving in-kind benefit and allocation of total value by type of educational service.



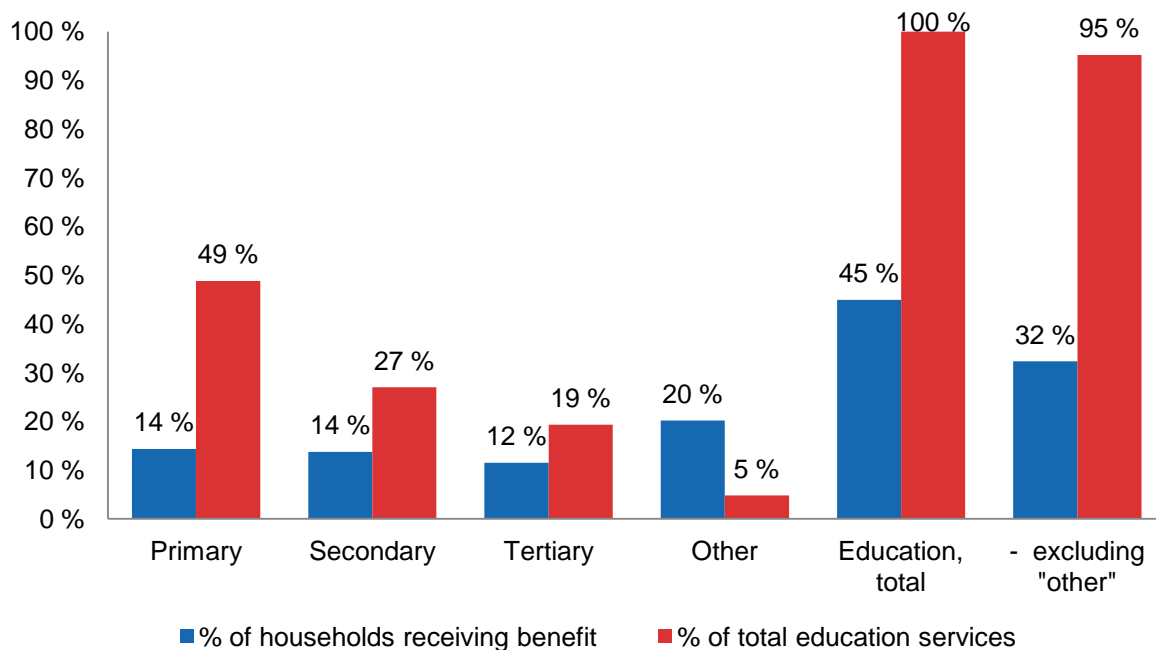
Overall, education accounts for 37% of STIK in the UK HBS, with 28% of households benefiting from these services. The provision of education for those of compulsory school age made up 61% of the total value of education related STIK.

The education figure also includes free school meals and healthy start vouchers. At the time this study was carried out, parents or carers were eligible to apply for free school meals if they were in receipt of certain cash benefits. In the HBS analysis, the value of free school meals is based on their costs to the public authorities. Taking administrative data on the quantity of school meals and the cost per unit, an aggregate cost is calculated. This aggregate cost is then divided amongst those children who are identified in the HBS as being eligible for free school meals. Information on Healthy Start vouchers is collected directly in the HBS.

3.1.2 Education services in Finland

Finland also uses the actual consumption approach in imputation of education services. The values are imputed at the level of individuals, distinguishing eight different types of education services. Table A3 in the annex gives more details of the different types of education services. The basic distinction is between primary, secondary, tertiary, and other services, with primary education taking half of the total value (Figure 3.1.2.1). All education services comprise 46 % of the total social transfers in kind in the Finnish HBS, with 45% of households having imputed value of these services. However, if education (courses) in adult education centres etc. is excluded, the share of households drops to 32.3 %. Primary education takes 22.4 %, secondary education 12.4 %, and tertiary education 8.8 % of the total STIK.

Figure 3.1.2.1. Education services in Finland: households receiving in-kind benefit and allocation of total value by type of educational service.



Primary education was split into pre-primary (age 6) and primary school (7-16), with beneficiaries simply identified by their age. Preschool is also a part of educational system. Up to 98 percent of all 6 year olds attend preschool even though it is not mandatory. Child day care centre services were treated as a social service in the Finnish HBS, not as an education service. Secondary education was split into upper secondary school⁸ and vocational schools, and tertiary education into polytechnics and universities. Labour market training and open college⁹ is included as well. School lunch is provided to all pupils free of charge. This government expenditure is included into education category of STIK, but is not separated from other expenses. Student lunch is compensated substantially, but is not included because there is no individual level data available. Student allowances are included in cash social benefits.

The identification of those in secondary or tertiary education was done by record linking data at the level of individuals from the education statistics database. Statistics Finland (SF) gathers data on all students annually. The data is cross sectional and contains information on attending students at 20th September. Information on educational institution, faculty, level of degree and part-time studying are available. It also contains information whether the student was attending on 20th of January. Furthermore SF gathers information on all graduates. Even though the primary data is cross sectional, all information combined it can be concluded whether the student received STIK for one or two semesters and part-time or full-time. In addition, participation in education or courses outside the school system in adult education centres, folk high schools, and in labour market training was asked in the HBS interview.

⁸ A three year-school that prepares the students for academic studies (school grades 10 to 12).

⁹ These are adult education centres (Kansalais- ja työväenopistot” in Finnish)

The values were imputed using average production cost data per student or pupil from the Ministry of Education and National Board of Education. Only one cost value was used for pre-primary and primary education¹⁰, while for universities, the values were stratified according to 20 different fields of study. Further to price data, the number of semesters enrolled in the educational institution (1 or 2) and part-time studying was taken into account.

Since participation in primary education is compulsory, free for all (including study materials and school meals), and only 2-3 per cent attend private primary education (which may be free for students), a simple allocation of national average cost to all children of compulsory school age is a feasible option to estimate the value of primary education. For secondary and tertiary education, actual consumption approach is more dependent on the identification of the beneficiaries and the cost data. The enrolment rates are lower, and there is more variation in the available price data, in particular for the universities¹¹. In cross-national studies where Finland has been included, the average costs of tertiary education that have been used in the imputation have been less detailed. For instance, in the study of OECD (2012), the average costs per student by ISCED levels were taken from the OECD education database. Distinction between public or private funding, general and technical secondary education, or between different types of tertiary education was not possible.

3.2 Health services

3.2.1 Health services in the UK – National Health Service

The publically funded healthcare systems in each of the countries of the UK make up what is known as the National Health Service or NHS¹². The services provide a comprehensive range of health services, the vast majority of which are free at the point of use for residents of the United Kingdom. The systems are primarily funded through central taxation.

The ‘actual consumption’ approach used for allocating the value of education services is considered to be less appropriate for health care as it implies that people who are ill are better off than healthy people with the same disposable income. An ‘insurance value’ style approach is therefore applied. This approach means that the benefit applies to 100% of households. Overall, it accounts for 60% of the total value of STIK in the UK HBS figures for 2012.

This benefit is estimated using data that are available on the average cost to the Exchequer of providing the various types of health care - hospital inpatient/outpatient care; GP consultations; pharmaceutical, dental and ophthalmic services; and so on. Each individual in the HBS is allocated a benefit from the National Health Service according to the estimated

¹⁰ For instance, in primary education the person-level data has only two values imputed, depending on whether a child was at school in both semesters or only one.

¹¹ Tertiary education is almost completely publicly funded in Finland. There are no fees for tertiary education in Finland, except for small compulsory fee for student unions.

¹² Since 1999, responsibility for healthcare in Northern Ireland, Scotland and Wales has been devolved to the Northern Ireland Assembly, the Scottish Government and the Welsh Assembly Government respectively. The UK Government remains responsible for health services in England. The four individual systems are the National Health Service (England), NHS Scotland, NHS Wales, and Health and Social Care in Northern Ireland (HSCNI).

average use made of these various types of health service by people of the same age and sex, and according to the total cost of providing those services. The benefit from maternity services is assigned separately to those households containing children under the age of 12 months. Separate values for the benefit-in-kind from healthcare services have been calculated for each devolved administration using regional spending figures from HM Treasury.

Ideally, an adjustment should be at least considered for the use of private health care services. However, this is not felt to be feasible from the data available. For example, whilst it is possible to identify individuals paying for private health insurance, it is not possible to ascertain the level of cover provided and therefore the likely impact on that individual/household's use of the NHS. In addition, it is generally acknowledged that all individuals do benefit from the simple existence of public sector health services (including the infrastructure and Accident & Emergency services), so there is an argument for not taking private health care into account in estimating the value of STIK.

The assigned benefit is relatively high for young children, low in later childhood and through the adult years until it begins to rise from late middle age onwards. Other studies by Sefton (2002) have attempted to allow for variations in use of the health service according to socio-economic characteristics. However, due to data limitations, this analysis is not able to take account of these variations in the use of the health service.

3.2.2 Health care services in Finland

In the Finnish data, the value of healthcare services is based on the actual consumption approach (AC). In the analysis of economic well-being, the AC approach is often criticised on the basis that it can lead to a conclusion that sick people seem to benefit from being sick. It should be noted that the alternative insurance-based approach, wherein people with similar characteristics are allocated a benefit value irrespective of the actual use, is not immune to this critique. The rationale for the actual consumption approach is that the primary aim of the Finnish data source is to measure consumption, and the actual consumption approach is suitable for analysing the users of the services, in addition to the value of consumption of the services. The detailed actual consumption data gives more possibilities to analyse STIK and its allocation, and to understand how STIK is distributed among the population.

However, in order to achieve a better comparability with the UK HBS data, we have applied both the insurance based and actual consumption approach to the data (see section 4.4.). For the insurance approach the individual level data was categorized into 16 subgroups by age and sex. The mean value of each subgroup was imputed to individuals in that subgroup and then summed to household level. We calculated the imputed values from the HBS data instead of other macro level sources in order to have comparable estimates.

In-kind health care benefits include healthcare services provided by the government as well as reimbursements paid for the use of private sector services. Reimbursements for prescribed medicine purchases are also included. Employers provide extensive healthcare services for their employees and university student health care is organized by an independent institution. These two healthcare systems are partly compensated by social security schemes, and therefore are included into STIK for that part. For instance,

government pays reimbursements to employers based on the actual use of the health care services by their employees. Because individual level register data is not available, the STIK is estimated through HBS interview data and funding base of the two systems.

Table 3.2.2.1 gives the basic information on estimated in-kind health care services in the Finnish HBS. Almost all households 95.1 % benefit from health care services in Finland. Almost as many households benefit from reimbursements from private sector services as health centre visits, though the amount in Euros is only a fraction on private sector. Nearly 90 % percent of all households receive medicine reimbursements.

Table 3.2.2.1 Health care services in the Finnish HBS: the actual consumption approach (AC)

	Number of households receiving benefit	% of all households	Average per household receiving	Total sum, million euro	% of total
Health care services total	2 467 797	95.1 %	3 366	8 305	100.0 %
Practices	2 153 917	83.0 %	786	1 693	20.4 %
<i>Health centre</i>	1 456 601	56.1 %	913	133	16.0 %
<i>Private doctor</i>	1 422 317	54.8 %	119	169	2.0 %
<i>Student health care</i>	50 809	2.0 %	531	27	0.3 %
<i>Occupational health care</i>	677 022	26.1 %	246	167	2.0 %
Hospital care	1 406 557	54.2 %	3 190	4 487	54.0 %
Dental care	1 299 943	50.1 %	420	546	6.6 %
Medicine purchases	2 322 539	89.5 %	462	1 074	12.9 %
Trips due to sickness	557 704	21.5 %	475	265	3.2 %
Rehabilitation	68 972	2.7 %	3 493	241	2.9 %

Regarding the data sources, the Institution of National Health and Welfare (THL) provides comprehensive data on public in- and outpatient care. They gather information on all hospital care (private and public), visits to the public health care centres as well as home care provided by the municipality. Records include information on occupation and speciality of the health care personnel and the type of service received, information that was used to determine the value of STIK. Private hospital care is not compensated by the government, thus it was excluded from the data.

Calculating unit costs for health and social care services would have been an overwhelming task, but fortunately THL has published a report containing unit costs for the year 2011. The figures were raised to 2012 level by using the appropriate coefficient.

The Finnish Social Security Institution (SSI) pays out reimbursements for the use of private healthcare and private day care services. They also pay reimbursements for prescribed medicine purchases. Therefore SII has extensive and accurate register data on every reimbursed doctor visit and medicine purchase as well as on children attending private day care. The data includes the total cost paid by the individual and the amount that was reimbursed. SII provided data to SF as summed to annual figures by person and reimbursement type.

Those who have private health care insurances apply reimbursement from SSI before sending insurance claim to their insurance company. In a way the beneficiary in these cases is the insurance company, not the household itself. However, private health insurances are not taken into account here, thus the beneficiary is considered to be the household.

3.3 Other social transfers in kind

3.3.1 Travel and housing subsidies in the UK

Travel subsidies cover the support payments made to bus and train operating companies. Rail subsidy is allocated to households based on their spending on rail travel taken from the HBS. The level of subsidy to those living in London and the South East is calculated separately from the rest of the UK, reflecting higher levels of subsidy for London transport and the assumption that a higher number of households in the South East will commute into London and thus benefit from this subsidy. In making these allocations, allowances are also made for the use of rail travel by the business sector, tourists and the institutional part of the personal (household) sector (for example, people who do not live in private households; i.e. prisoners, or people in care homes). Bus travel is calculated in a similar way but additional levels of benefit are allocated to those household containing individuals who indicate in the HBS that they hold a concessionary bus pass.

The figures for rail travel subsidy also take into account the Government grant to the infrastructure operator (Network Rail), which enables Network Rail to lower the charges levied on each train operating company, using data supplied and published by the Department for Transport (DfT). This grant is apportioned regionally according to the benefit the train operating company's gained from reduced fees, which, it is assumed, are passed on to consumers through lower fares.

The figure total housing subsidy reflect the contribution from central Government to the housing revenue accounts of local authorities and grants paid to Scottish Homes, the NI Housing Executive, housing associations and registered social landlords. Within Greater London, the rest of England, Wales, Scotland and Northern Ireland, each public sector tenant in the HBS sample was allocated a share of the region's total relevant subsidy, based on the council tax band of the dwelling and the weighted average (by type of property)

property price within each country or region. Housing subsidy does not include rent rebates and allowances or local tax rebates, nor does it reflect the wider benefit of social housing offered at below market rents. In addition, it should be noted that the value of these subsidies is extremely small compared with the value of housing benefit, which is received by those on low incomes to help pay their rent. In 2012/13, total expenditure on housing benefit was £23,893bn.

3.3.2 Child care and other social services in Finland

Social services consists mainly of public day care services for children as well as reimbursements for the use of private sector day care services. To a certain extent it also covers other services like homecare provided by the municipality for the elderly and other groups in need of social assistance. However, as in the UK, the Household Budget Survey (HBS) target population and sampling frame exclude long term patients or persons living in institutional care. Therefore these services (e.g. old-age homes) are not included. This is a notable deficiency because old-age care has a substantial and increasing significance in social policy in many countries.

Table below gives the basic information on estimated in-kind social services in the Finnish HBS. Child care comprises 74 per cent of the total amount, and around 9 per cent of all Finnish households benefit from government subsidised child care. The imputed value of child care services adds 2.1 per cent to equivalent cash disposable income in Finland. This is line with the OECD study (2010, p.51), which also estimated that in the UK the effect of child care was nearly negligible. As highlighted above, UK in-kind childcare benefits are included in the figure for education, whilst other childcare support is included within the measure of disposable income.

Table 3.3.2.1 Social services in the Finnish HBS

	Number of households receiving benefit	% of all households	Average per household receiving	Total sum, million euro	% of total
Social services, total	394,105	15.2 %	5,304	2,091	100 %
Child care	233,226	9.0 %	6,594	1,538	74 %
Home care services	61,738	2,4 %	7,617	470	22 %
Other municipal services	121,964	4.7 %	677	83	4 %

In Finland, all children under school age are entitled to receive municipal day care after the period of parental allowance. The use of child care is measured as number of months per child, and comes from the HBS questionnaire. For each child, the value of production net

cost is imputed (791 per month)¹³. If the parents opt for private day care provided, they are subsidised through a private day care allowance, which is paid directly to the service provider. The subsidy is available from an administrative register. The private day care subsidy is included as STIK in the HBS. The third child care option, available if one parent stays at home and the child is under the age of 3, is the child home care allowance. This is cash social benefit, already included in disposable income.

¹³ Ideally, the variation in households' child care payments should be taken into account (gross rather than net costs). A household pays for the day care depending on its income and size. In August 2014, the maximum payment was 283 euro per month.

4. Distributional impact of STIK in the UK and Finland

4.1 Analysis of the impact of STIK by quintile group

One of the aims of this paper is to look at what happens to the income inequality measures of the two countries when the redistribution of economic resources through government provided and mainly tax-financed services is also taken into account. Before taking into account the effect of STIK, income inequality, as measured by the Gini coefficient for disposable income is lower in Finland than the UK (Table 4.1.1). This is consistent with the larger share of tax revenues and of social expenditure as a % of GDP, which indicate greater potential for a more extensive redistribution of primary income in Finland, as well as a larger extent of welfare state provision.

Social expenditures can be broken down to expenditures in cash and in-kind. In relative terms, cash social expenditure plays a more prominent role than in-kind expenditures in Finland, whereas the split is more equal in the UK.

Table 4.1.1: Income inequality, tax revenues and social protection in the UK and Finland.

	United Kingdom	Finland
Gini coefficient 2012, disposable cash income	32.8	25.5
Tax revenues, % of GDP	35.2 %	44.1 %
Social expenditure, % of GDP (OECD)	23.9 %	30.0 %
Of which: cash expenditure	12.2 %	18.1 %
Of which: in-kind expenditures	11.6 %	11.9 %
Expenditure on social protection per head, euro, 2011	8,130	9,174

Gini-coefficients based on EU-SILC, modified OECD scale, person weights. UK Gini taken from Eurostat database (EU-SILC 2012, income reference year 2012), Finnish Gini from Statistics Finland (EU-SILC 2013, income reference year 2012). Tax and social expenditure data taken from the OECD database. Expenditure on social protection per head from Eurostat database.

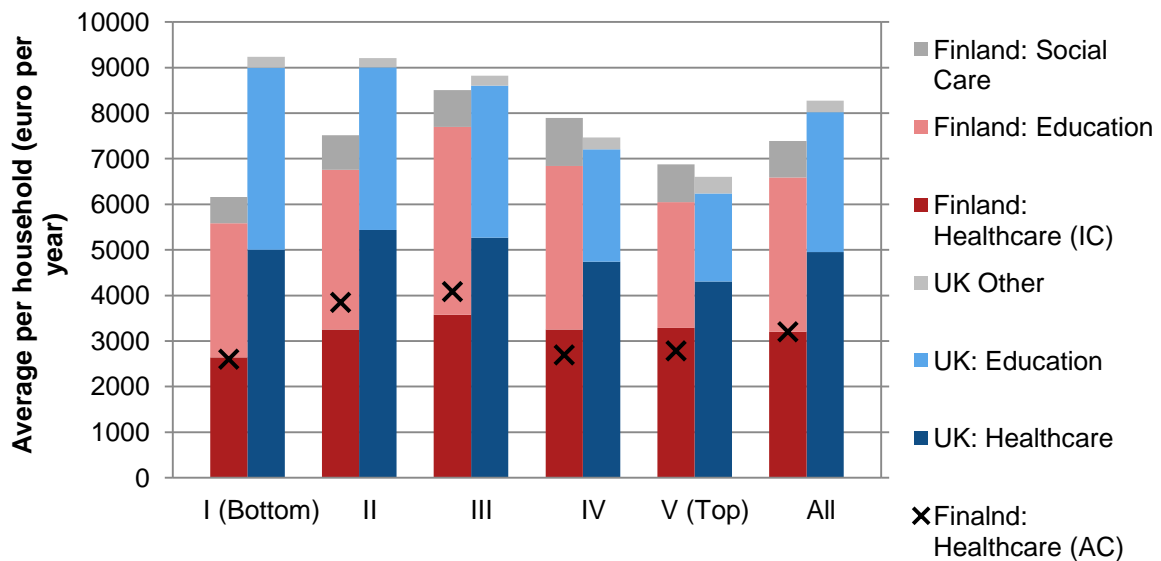
Figure 4.1.1, below, shows the value of social transfers in kind by income quintile¹⁴, based on the 2012 HBS data for the UK and Finland. As can be seen, the average value of STIK per household is higher in the UK (EUR 8,300) than Finland (EUR 7,400), and remains so even if housing and travel subsidies are removed from the UK figure. This does not appear consistent with the figures presented earlier in this paper on STIK per capita, based on National Accounts figures, in which the value of these in-kind transfers was higher in Finland. This is partly explained by the lower coverage rates for education and healthcare services in the Finnish HBS compared with the UK HBS data which were highlighted in section 2.

¹⁴ Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.

This figure also highlights the differing distribution of STIK across quintiles in the UK and Finnish data. Based on this data, the distribution of STIK in the UK is broadly progressive, with the bottom and second quintiles receiving the equivalent of EUR 9,200 per year, compared with EUR 6,600 received by the richest fifth. This pattern reflects the demographic profiles of the different quintiles.

The value of healthcare is lower in the top two quintiles in the UK, as those over the age of 65, who on average make greater use of health services, are largely located in the bottom three income quintiles. Similarly, households in the lower quintile groups received the highest benefit from education. This is due to the relatively high number of children in this part of the distribution, along with the presence of university/college students living in shared houses. In addition, children in households in the higher quintiles are more likely to be attending private schools and an allocation is not made in these cases.

Figure 4.1: Social transfers in kind by household equivalent income quintile group, Finland & UK, HBS 2012.



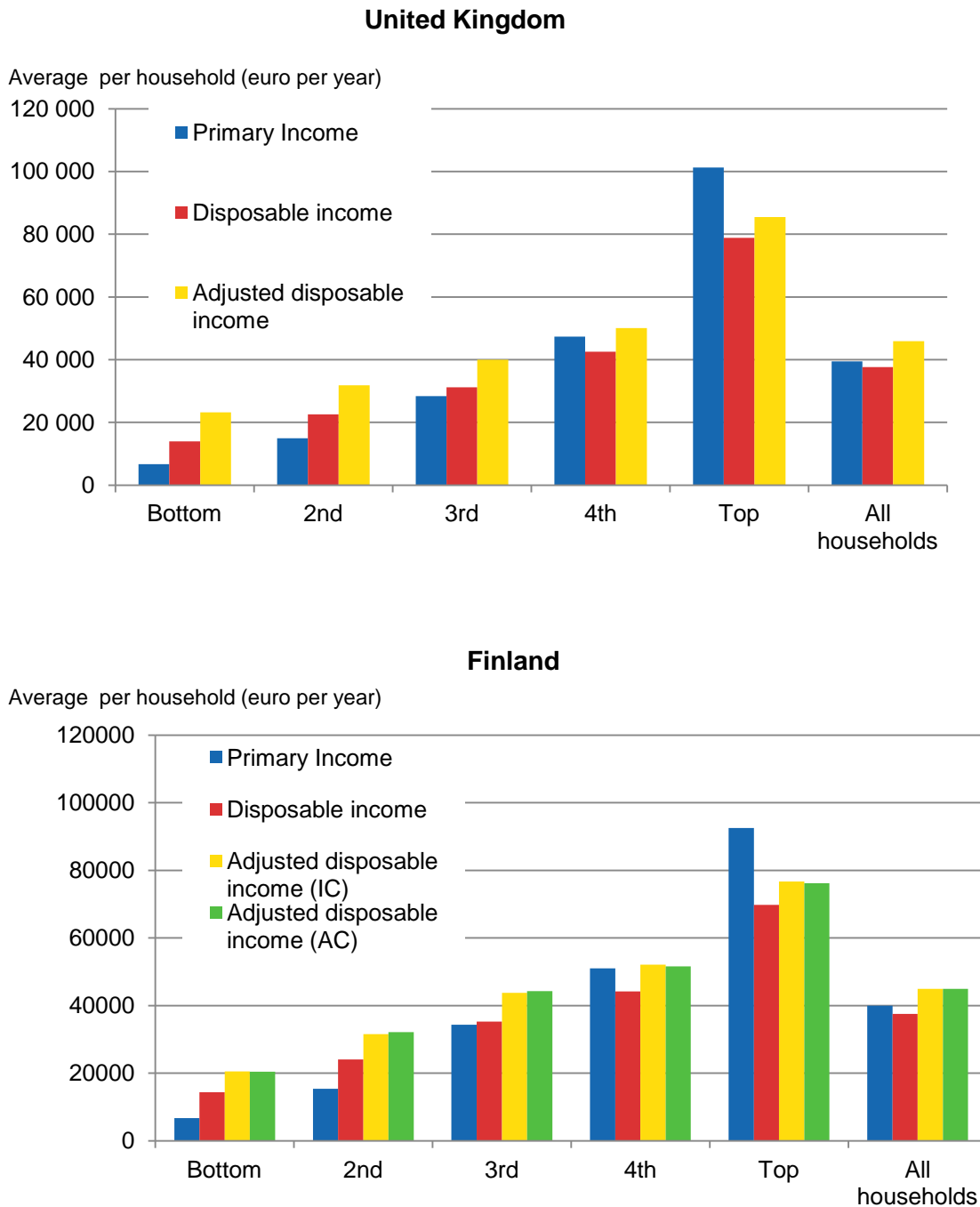
By contrast, in Finland, the middle and second quintiles have the highest average values; together they account for almost half (46%) of the total value of STIK. The poorest fifth of households received the equivalent of EUR 6,100 from social transfers in-kind, while the average in the fifth quintile group was close to EUR 6,900. The middle quintile received the highest benefit from both education and healthcare. Social services are more concentrated to the fourth and fifth quintile.

The crosses in Figure 4.1 show the average value of health services when imputed with the actual consumption approach (AC). The actual consumption method allocates more value to the second and third quintiles and less to the fourth and fifth compared to the insurance approach (IC). The average value in the bottom fifth remains almost unchanged.

Figure 4.2 summarises the effect that these social transfers in kind has on the income distributions for the UK and Finland. In this chart, primary income is defined as income from

employment, private pensions, investments and other non-government sources. In 2012, the richest fifth of households in the UK had an average primary income (i.e. before all taxes and benefits) of EUR 101,300 per year, compared with EUR 6,700 for the poorest fifth – a ratio of 15 to 1. In Finland, the S80/20 ratio based on this measure was slightly lower at 14 to 1, with the richest and poorest quintiles receiving EUR 92,600 and EUR 6,700 respectively.

Figure 4.2: Primary, disposable and adjusted disposable income by household equivalent income quintile group, UK and Finland, HBS 2012

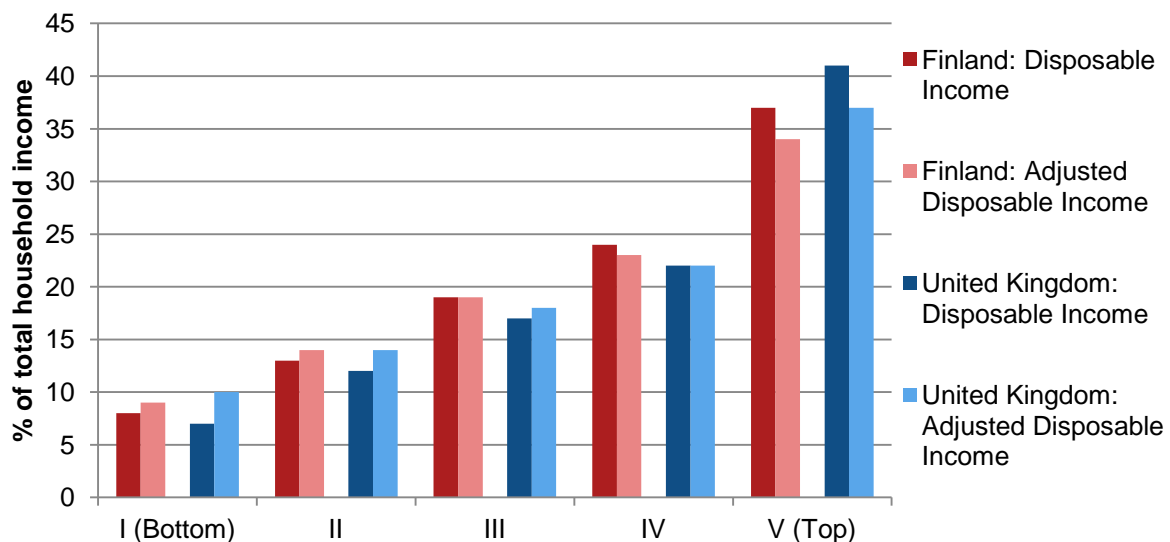


Direct taxes and cash benefits lead to income being shared more equally between households, with the richest fifth of UK households having average disposable incomes that were six times those of the poorest fifth (EUR 78,800 per year and EUR 13,900, respectively). In Finland, inequality on this measure was lower, with the richest quintile having an average disposable income five times that of the poorest (EUR 69,800 and 14,400 respectively).

Adjusted disposable income, which includes STIK, further reduced inequality in both countries, though the effect on this measure appeared to be greater in the UK. In both countries the S80/20 ratio was reduced to around 3.7 to 1. For Finland, adjusted disposable income figures are presented for two definitions, one for the actual (AC) and one for the insurance-based (IC) imputation of health services. There is very little difference between the two, however.

Another way to consider the impact of STIK on narrowing income inequality is to examine the shares of income disposable and adjusted disposable income accruing to quintiles of equivalent disposable income (Figure 4.3). In Finland, the difference is largest in the top fifth, which gets 37 % of disposable (unequalised) income but 34 % of adjusted disposable income. The same effect is found for the UK, where the richest fifth receive 41% of disposable income, compared with 37% of adjusted disposable income.

Figure 4.3: Income shares (% of total income) by household equivalent income quintile group, Finland & UK, HBS 2012



At the bottom of the income distribution, the effect of the relatively high levels of STIK for the poorest households in the UK is seen again. In Finland, the bottom quintile received 8% of disposable income, compared with 7% in the UK. However, when looking at adjusted disposable income, the proportions received by this group in Finland and the UK were 9% and 10% respectively.

4.2 Equivalence scales and sharing of the benefits within households

In the latter part of this paper, we follow the common practise of dividing income by the number of consumption units, and having individual as the unit of analysis instead of household. In doing so, some of the methodological choices which need to be made will affect the results of the distributional analyses. Therefore, the following section discusses these issues in more detail.

A key methodological choice is whether to attribute the in-kind services to individuals or to the household in which they live (UNECE, 2011; p. 45). In the Finnish and UK data, the majority of values usually are imputed to individuals, because the services covered are actually consumed by individuals. It would therefore be feasible to add the individual value of services to the incomes of persons, making the assumption that the benefits accrue to the individual users and are not shared among household members. It could be argued that this is a reasonable assumption in the case of use of healthcare services, but it is probably not appropriate for all services. For example, primary and secondary education services and child-care are consumed by children living with one or more parents or other carers. In the absence of STIK, the costs would have to be borne by other members of the current household, reducing the capacity to spend their disposable income on other goods or services. In the case of tertiary education, the (large) benefits are imputed often to independent low income households, with the potential benefits accruing later in the form of higher earnings distributed over a long period.

In the following, we use the benefits measured at (or summed up to) household level and attribute the benefits to all current household members, i.e. assume that the benefits are equally shared, as with other forms of income. For instance, benefits from primary school are included in equivalent incomes of both the children and the parents, and influence the within-group distributions of both, because the individual is the unit of analysis.

The income values are divided by the number of consumption units before allocating them to individuals, but there is an important question regarding the appropriate equivalence scale for this purpose. The STIK values could be divided by household size, which would imply equal sharing but no adjustment for needs, or economies of scale in consumption. Alternatively, one may assume that needs increase proportionally less than household size. In the this case, one could either apply for STIK the same equivalence scale used for cash income, or apply different equivalence scales to cash income and STIK.

The analysis presented in Section 4.1 on the redistribution of income uses quintiles based on equivalised disposable income, using the so-called OECD-modified scale (1-0.5-0.3). However, this and other scales such as the square root of household size¹⁵ are designed for equivalising cash income and may not be appropriate once STIK are included in the income definition. Indeed, it is widely recognised that it is highly desirable to use an equivalisation scale that takes into account the extra non-cash needs when carrying out poverty analysis based on adjusted disposable income. This point is illustrated particularly clearly when considering young children. The OECD-modified scale assigns a smaller value for children

¹⁵ The former is used by Eurostat and many statistical institutes in Europe, while the latter is used e.g by the OECD and the Luxembourg Income Study.

than for additional adults in the household, based on assumed needs. However, young children have a high need for education services and also comparably higher needs for healthcare (though less than for older people). Therefore applying a standard equivalisation scale to adjusted disposable income would risk overstating the standard of living of those households with young children.

Recent work by Aaberge et al. (2013) has resulted in the development of the simplified needs adjusted (or SNA) scale designed for researchers interested in the distribution of adjusted disposable income. The SNA scale was produced by first estimating a non-cash equivalence scale and then combining it with a cash income scale. Their study considered education and childcare services, health care, and long-term care. Childcare and education increase the weights of children compared to the modified OECD-scale, and health-care and long-term care increase the weights of the elderly (Aaberge et. al., 2013, p.22).

Table 4.2.1: Simplified Needs Adjusted (SNA) equivalisation scale

Constant	0.46
0-3	0.41
3 years to education age*	0.57
Education age* below 14	0.69
Education age* above 13	0.95
Above education age* – 54	0.54
55-64	0.60
65-74	0.67
75 and above	0.75

* For the purpose of this study, education age is taken to be 6-19 inclusive in Finland and 5-18 inclusive in the UK.

Some caution is necessary in applying the SNA scale. In particular, the social transfers in kind included in the Aaberge et al. analysis do not directly correspond with those in the UK adjusted disposable income figures. Nonetheless, given that education (including nursery/childcare) and healthcare make up 96 per cent of the UK STIK data by value, it was felt that the SNA scale would be the most suitable pre-existing scale available for this exploratory analysis. Education, childcare and healthcare together made up 97% of the total Finnish STIK in the HBS by value.

As with the OECD-modified scale, equivalised household size is calculated by summing the constant plus the weightings for each household member (See Table 4.2.1). In applying the scale in Finland and the UK, a different definition of education age was used in each country, reflecting the different education systems. In Finland, education age in the scale was defined as 6-19 years, including the one-year pre-primary

school plus 12 years of primary and secondary education¹⁶. For the UK, education age was taken to be 5-18 inclusive.

4.3 The overall impact of STIK on income inequality measures

Table 4.3.1 shows that income inequality decreases significantly when the value of social transfers in kind is included in household income, taking results from the HBS data used in this paper.

Table 4.3.1. Impact of STIK on Gini coefficient, UK and Finnish HBS 2012

	United Kingdom		Finland	
	Modified OECD	SNA	Modified OECD	SNA
Baseline: disposable cash income	0.328	0.348	0.251	0.271
Adjusted disposable income 1 *	0.260	0.272	0.215	0.222
- Reduction	-20.8%	-21.8%	-14.3%	-18.1%
Adjusted disposable income (education & healthcare* only)*	0.260	0.273	0.215	0.224
- Reduction (education and healthcare only)	-20.5%	-21.6%	-14.3 %	-17.3 %
Adjusted disposable income 2 **			0.223	0.230
- Reduction			-11.2%	-15.1%
Partial effects:				
- Cash + education,	-9.9%	-11.5%	-7.2%	-10.4%
- Cash + insurance based health care,	-11.5%	10.8%	-8.1%	-7.7%
- Cash + actual use of health care,			-4.2%	-4.0%
- Cash + social services.			-0.5%	-1.2%
- Cash + housing subsidies	-0.1%	-0.1%		
- Cash + bus subsidies	-0.4%	-0.3%		
- Cash + rail subsidies	0.0%	0.0%		

* Insurance-based health care; ** FI: total STIK with actual use of health care

¹⁶ Compulsory school age in Finland starts at age 7 and ends at age 16.

In the Finnish HBS, with the modified OECD scale, the Gini coefficient drops from 0.251 to 0.215 or 14.3 %, if health services are imputed based on insurance approach. If the actual consumption approach is used, the Gini falls slightly less (11.2 %). If SNA scale is used, the relative reduction in the Gini is slightly larger for both measures of adjusted disposable income. In Annex 2, the distributional impact in Finland is examined in more detail.

For the UK, the Gini for adjusted disposable income is 20.8% lower than the one for disposable income (falling from 0.328 to 0.260), when using the modified OECD scale. When the SNA scale is adopted, the reduction rate is 21.8%. It would therefore appear that STIK have a bigger impact on reducing inequality in the UK than in Finland, though the value of the UK Gini for adjusted disposable income remains above that for Finland.

OECD (2012) and Aaberge et. al. (2013) have both also looked at the impact of STIK on the distribution of income. Table 4.3.2 below quotes the main results from these two studies for the UK and Finland to provide a comparison with the present results.

Table 4.3.2. Impact of STIK on Gini coefficient: comparison to other studies

	United Kindgom	Finland
Aaberge et. al., (p.27, EU-SILC)		
Disposable cash income 2009, modified OECD	0.328	0.252
Extended income 2009 (education, health and long-term care, ESEC), modified OECD	0.258	0.204
- <i>Reduction,</i>	-21.3 %	-19.0 %
Extended income 2009 (education and health), simplified need adjusted SNA scale	0.267	0.207
OECD 2012, table A5		
Cash	0.33	0.266
Extended (education, health, housing)	0.252	0.218
- <i>Reduction,</i>	-23.6 %	-18.2 %
OECD 2012, table A6 (reduction in Gini)		
- <i>Cash + education,</i>	-7.0 %	-4.3 %
- <i>Cash +health care,</i>	-12.5 %	-10.8 %
- <i>Cash + early childhood and child care</i>	-0.7 %	-1.0 %
- <i>Cash + long-term care</i>	-1.6 %	-2.5 %

Both the study of Aaberge et al. and the OECD covered education and childcare services based on actual consumption approach and health and long-term care based on the insurance approach. The OECD study included also social housing, in the form of imputed rentals of tenants not paying full market rent. The underlying survey in both studies is EU-SILC, and the reference years differ from the Household Budget Surveys used in this paper.

The OECD estimate of relative reduction was 18.2 % for Finland. In the study of Aaberge et al., with essentially the same coverage of STIK, the Gini also reduced about one fifth (19 %) in Finland. Consequently, the change in inequality based on the HBS 2012 in Finland appears to be slightly smaller than in the cross-national studies. In addition to the impact of the country-specific methodology, the differences may also result from sampling and non-sampling errors in the different sources as well as from different reference years. For instance, the distributional impact depends on the distribution of cash income, which differs somewhat between the Finnish HBS and EU-SILC.

The results of the OECD and Aaberge et al. studies for the UK appear to be broadly comparable with those for the current analysis. All three place the UK Gini for disposable income at around 0.33. The relative reduction in the Gini in the Aaberge et al. study was 21.3% when the modified-OECD scale was used. The fall in the Gini in the OECD research was slightly larger, likely reflecting the inclusion of social housing.

The OECD study also reported the partial impact of only including the main STIK components one at a time. For Finland, the OECD study suggests that insurance-based imputation of health care services would have larger impact than education. In the Finnish HBS, there is not much difference with the insurance-based imputation while with actual consumption, education reduces inequality less. For the UK, the impact of education on reducing income inequality also appears to be larger in the current study than would be suggested by the OECD paper. Again, these results have to be interpreted with caution because of differences in data and methods.

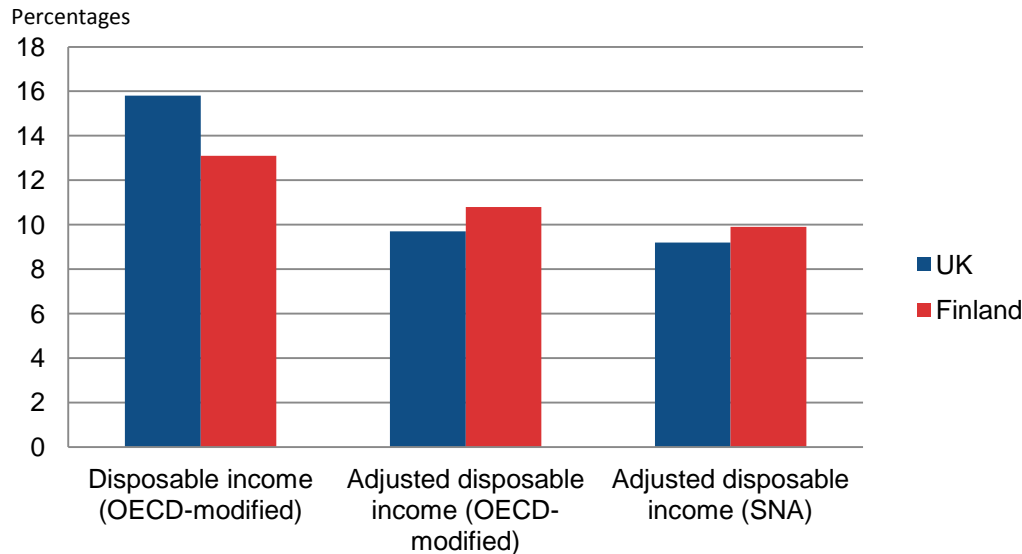
4.4 The impact of STIK on relative income poverty

The Household Budget Surveys used in this paper are not the sources for official poverty statistics in either country, but can be used to examine the impact of including STIK within such measures of relative low income. The standard definition of relative income poverty in the EU is 60 per cent of median equivalent disposable income, with median defined from the distribution of persons. In Finland, the HBS estimate of income poverty rate was 13.1% according to the EU definition, and households below 60 percent poverty line received around one fifth of total equivalised social transfers in kind, with two thirds of the total going to the middle of the distribution (see Table A3 in the annex). In the UK, the at-risk-of-poverty rate based on HBS equivalised disposable income was slightly higher at 15.8%.

Figure 4.4 compares poverty rates based on adjusted disposable income, including STIK, under various definitions. We use a “floating” poverty threshold (OECD, 2012), i.e. low income threshold is defined from the distribution of each income concept. The impact of including social transfers in kind on this whole population measure is very noticeable, with the largest impact for the UK. Including STIK within income, but retaining the OECD-modified equalisation scale had the effect of reducing the headline rate to 9.7% in the UK

(a 39% reduction in the at-risk-of-poverty rate. This was around 1 percentage point lower than the Finnish rate for the same measure (10.8%; a relative reduction of 17.6%).

Figure 4.4: Relative at-risk-of-poverty rates, UK and Finland, 2012



For the overall population, the effect of applying the SNA equivalisation scale was relatively small, reducing the relative at-risk-of-poverty rate for adjusted disposable income to 9.2% in the UK and 9.9% in Finland.

For reference, Table 4.4.1 also shows the estimates of Aaberge et. al. (2013), who imputed social transfers in kind to all European countries using EU-SILC data. According to Aaberge, in 2009 social transfers in kind reduced poverty rate by 33 % (5.8 pp) in the UK and by 28 % (3.6 pp) in Finland, using the modified OECD scale. In both countries, the SNA scale further reduced poverty rates.

In Finland, the HBS poverty rate is reduced by 17.5 percent (2.3 pp) with the insurance-based health care while it only reduces by 4.5 % (0.6 pp) with the actual consumption approach. The results suggest that insurance-based imputation of health care has more impact on income poverty and inequality than actual consumption based imputation. Compared to Aaberge et. al., the decrease in poverty is smaller. This result may be driven by differences in data sources, reference years, and methods.

The different impact of STIK on poverty measures in Finland and the UK may be partly explained by the composition of the population at risk of poverty under the disposable income measure. If the beneficiaries of education and healthcare services are more likely to be clustered around the middle of the income distribution (as is the case in Finland - see Figure 4.1) then any reduction in poverty rates due to the inclusion of STIK is likely to be relatively small compared with a country such as the UK, where those towards the bottom of the income distribution typically benefit from STIK the most.

Table 4.4.1. Impact of STIK on income poverty rates (60 % of median), UK and Finland HBS, 2012

	United Kingdom		Finland	
	Modified OECD	SNA	Modified OECD	SNA
Disposable income				
HBS (2012)	15.8	18.0	13.1	14.5
Aaberge et. al. (2009) ***	17.1	-	12.8	-
Adjusted disposable income				
HBS Adjusted 1 (2012)*	9.7	9.2	10.8	9.9
- poverty rate reduction (cf disposable)	38.6%	41.5%	17.6%	24.4%
Aaberge et. al. (2009) ***	11.3	9.4	9.2	6.5
- poverty rate reduction	33.9%	-	28.1%	-
HBS Adjusted 2 **			12.5	11.1
- poverty rate reduction			4.6%	23.4%

* FI: education, insurance-based health care, social services ** FI: education, actual use of health care, social services *** Aaberge et. al. (2013), Table 9, p. 28: Education and ECEC based on actual use, health and long-term care based on insurance approach

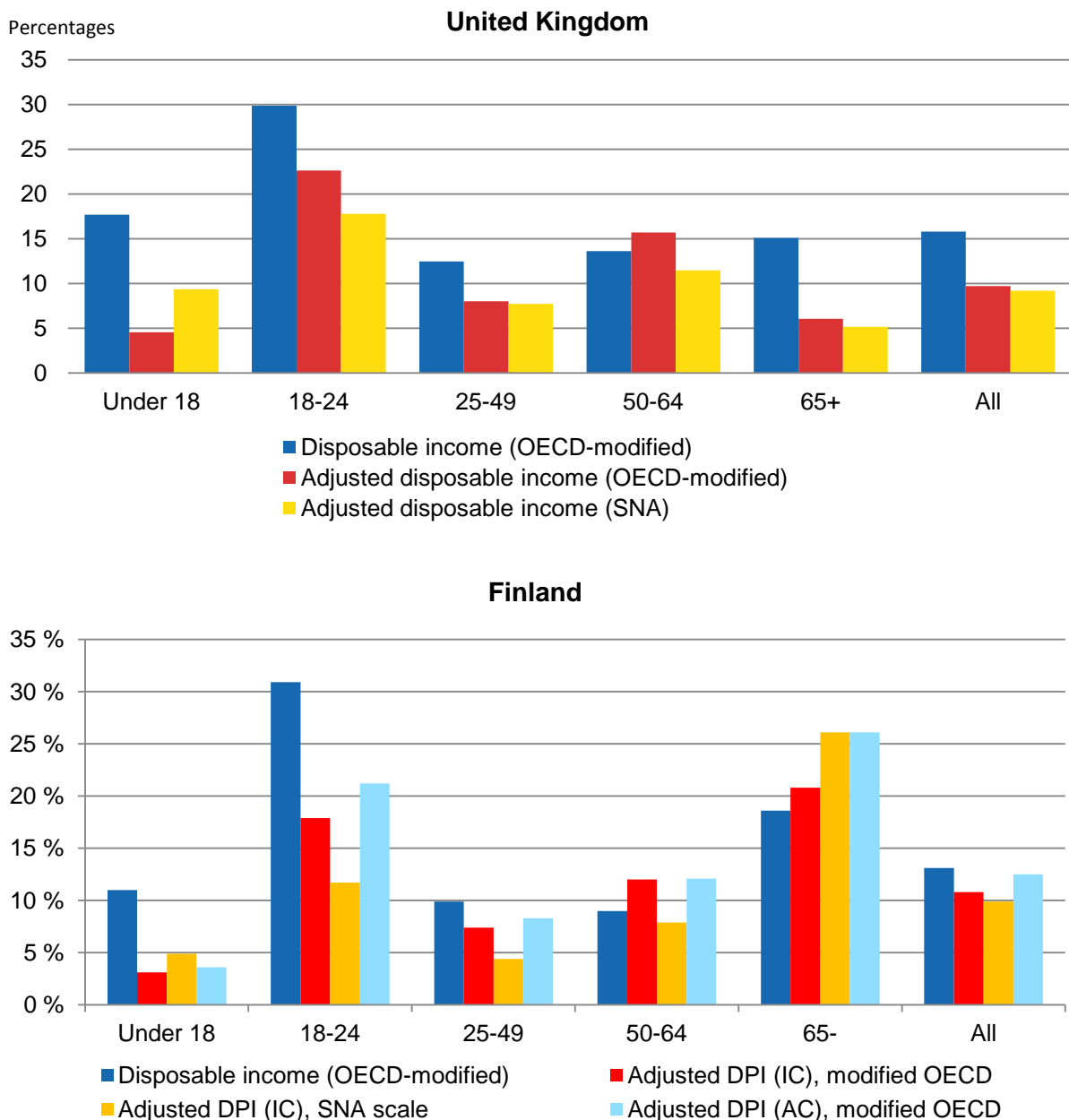
Although the inclusion of STIK in Finland has a modest effect on poverty rates in the HBS, it does affect the composition of the population of those who are poor and poverty rates of certain sub-groups, as it does in the UK. We next look at the impact on income poverty rates by age for both countries.

As can be seen in Figure 4.5, the impact of the choice of equivalisation scale becomes more apparent when examining at-risk-of-poverty rates for subgroups of the population. This chart shows that, for the UK, the effect of including STIK within the income measure used to calculate relative income poverty is largest for young people and those over the age of 65. This is perhaps unsurprising given the age-orientated methods for valuing healthcare and education services.

In 2012, based on disposable income, 17.7% of people under 18 were considered to live in households at risk of poverty. For the adjusted disposable income (OECD-modified) measure, this falls to 4.6%. However, the OECD-modified scale almost certainly understates the needs of this group, particularly with regard to education services. Taking this into account through applying the SNA scale increases the rate to 9.3%.

Similarly, the adjusted disposable income (OECD-modified) measure leads to an apparent increase in at-risk-of-poverty rates in the UK for those aged 50-64. However, when using the SNA scale, which better reflects their needs for healthcare and other STIK, the rate for this age group is reduced.

Figure 4.5. Percentage of persons below 60 % of median by age of person under alternative specifications, UK & Finland, HBS 2012.



A somewhat peculiar result in Finland concerns the poverty rate of the elderly, which does not decrease as it did in the UK. The poverty of the elderly in fact increases from 18.6% to 26.1% when total STIK is included, and further to 29.3% when the SNA scale is used (Figure 4.5). The number of elderly poor also goes up from 191,000 to 300,000. If only health care services were included, the poverty rate of the elderly would go down as expected, although

only by around 2 percentage points. With the insurance-based approach (IC), the increase is more modest (from 18.6 % to 20.8) but with the SNA scale the elderly poverty goes up to 26%. It seems that the imputation of educational services is the driving force of poverty rates for adjusted disposable income. With all definitions there is a sharp reduction on the poverty of children (under 18) and the young (18-24), so that the change in overall poverty rates is quite modest. In addition to poverty rates, also the age profile of those classified as income poor would change significantly (see Figure A1 in the annex).

5. Summary and conclusions

Statistics including a valuation of social transfers in kind are clearly of use to those interested in measuring and understanding economic well-being, the redistribution of income and poverty, particularly when making cross-country comparisons where level of in-kind services provided by the state may vary considerably. It is therefore useful for poverty analysts in national and international organisations to be able to consider such measures alongside the official poverty statistics, whether these are based on relative low (cash) income as in the UK and Finland, or another measure.

For within-country comparisons, measuring the impact of STIK, along with that of indirect taxes, is also highly desirable for work aimed at examining, in full, the redistributive effect of the tax and benefits systems. However, for analysis looking specifically at income poverty, it's arguably less apparent that using adjusted disposable income is appropriate. In particular, it may not necessarily be sensible to treat in-kind income as comparable with cash income in determining poverty rates.

Despite the usefulness of measuring and analysing STIK, great care needs to be taken in interpreting the figures. One of the key findings from the present study was that the at-risk-of-poverty rate for adjusted disposable income was lower in the UK than in Finland, whereas for disposable income based measures, poverty was lower in Finland. In contrast to this, Finland remained the country with lower overall income inequality with both adjusted and cash disposable income concepts, when measured with the Gini coefficient. In both countries, overall income differences narrowed significantly.

To properly understand the low-income results of the present study, one needs to consider the distribution and composition of the population at risk of poverty prior to the inclusion of STIK. In the UK, there are a relatively large number of school age children towards the bottom end of the income distribution, along with university/college students living in shared accommodation. Similarly, those over 65, who make greatest use of health services are more likely to be in the bottom quintiles. By contrast, in Finland, it is the middle quintile who receive the greatest in-kind benefit from education and healthcare services. The inclusion of STIK could therefore potentially even increase income differentials between those in the middle and poorer households.

In making cross-country comparisons, issues of valuation are also important. In this study, along with most others, the value allocated to households is assumed to be equal to the cost of provision incurred by the state. This approach doesn't take into account the value that users place on the services and also doesn't reflect any differences between countries in the quality and efficiency of the services. For example, the average value in Euros of education services for receiving households is higher in the UK than Finland, but this does not necessarily mean that UK students are receiving a higher quality education¹⁷.

Differing levels of coverage across countries may also have an effect on the results of analysis, and therefore interpretation. For example, the healthcare services imputed onto the UK HBS accounted for 94.6% of the National Accounts total by value. By contrast, the

¹⁷ For example, Finland scored higher than the UK on maths, reading and science in the 2012 OECD PISA tests

coverage rate for the Finnish data was lower, at around 75 %. There was an important discrepancy in the macro and micro estimates, with the HBS indicating the UK having larger share of STIK out of total consumption, while the macro estimates indicated the share of STIK is much higher in Finland.

More broadly, both the present analysis and previous research in this area, demonstrate that the choices and assumptions made in carrying out analysis of STIK are crucial. The outcomes of any analysis are likely to vary considerably depending on decisions made on factors such as:

- The social transfers in kind included/excluded from the analysis;
- Whether an actual consumption, insurance value, or flat rate approach is taken for valuation;
- Whether values are allocated at the household or individual level;
- Which equivalisation scale is used; and
- Whether a "fixed" or "floating" at-risk-of-poverty threshold is used.

Some of these decisions will depend on the aims of the research. However, there is value in taking steps to further develop international best practice to improve the availability of comparable data. It may be that a higher degree of cross-country comparability (albeit with quite some loss of detail) can be achieved with centralised imputation based on harmonised methods and data sources (surveys and cost data), rather than comparing results from the types of national efforts presented in this paper.

A major methodological difference between the UK and Finland was the use of actual consumption method for health services in the Finnish Household Budget Survey. The rationale for the actual consumption approach in Finland is that the primary aim of the Finnish data source is to measure consumption, and the actual consumption approach is suitable for analysing the users of the services, in addition to the value of consumption of the services. However, this paper also reviewed Finnish results based on the insurance approach, and these indicate that it has more distributional impact than the actual consumption approach. For studies of economic well-being and income distribution, the insurance approach may be preferable. Moreover, it is easier to produce for cross-national data sets and purposes. It is likely that the Finnish Household Budget survey will estimate health services with both methods in the coming rounds.

It is important to bear in mind that the estimates presented in this paper are cross-sectional estimates. The value of social transfers-in-kind have a life-cycle pattern; the young children benefit from child care and pre-primary school, moving on to primary school, and many of them further to secondary and some to tertiary education. The actual use of health care services is also dependent on age and household structure. The benefits from social transfers in kind materialise over time, with tertiary education being the prime example. Frequent production of consistent repeated cross-sectional data over a very long period of time (or even very long panels) on social transfers in kind is therefore important.

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Annex 1. Additional tables and figures

Table A1. Social transfers in kind in the Finnish National Accounts 2012, by sector and industry. Total sums, million EUR. Source: Statistics Finland, National Accounts.

	Central	Local	Social insurance funds (S1314)	NPISH (S15)	Total	% of total STIK
A. General government and NPISHs non-market production	2618	23290	1296	4789	31993	85.8
Education	2536	7080	0	1281	10897	29.2
Health care	4	9457	0	181	9642	25.9
Social care	3	5615	0	620	6238	16.7
Culture	75	566	0	261	902	2.4
Sports and recreation	0	572	0	209	781	2.1
Other industries	0	0	1296	2237	3533	9.5
B. Market production purchased by general government and NPISHs	281	2737	2255	3	5276	14.2
A+B Social transfers in kind total	2899	26027	3551	4792	37269	100.0
- of which: education, health and social care & reimbursements	2824	24889	2255	2085	32053	86.0

Table A2. Social transfers in kind in the UK National Accounts 2012, by sector and industry. Total sums, million EUR. Source: ONS, National Accounts (Data consistent with Blue Book 2013)

	General Government	Social insurance funds (S1314)	NPISH (S15)	Total
A. General government and NPISHs non-market production (P12)	146,087	0	156,058	302,145
a. Education	73,555	0	N/A	73,555
b. Health care	137,704	0	N/A	137,704
c. Social care	38,378	0	N/A	38,378
d. Culture and recreation	7,676	0	N/A	7,676
B. Market production purchased by general government and NPISHs (P11)	1,878	0	5,906	7,784
e. Education	342	0	1,580	1,921
f. Health care	883	0	223	1,106
g. Social care	158	0	765	922
h. Culture and recreation	496	0	580	1,075
i. Other industries	0	0	2,759	2,759
A+B Social transfers in kind total	147,965	0	161,964	309,929
- of which: education, health and social care & reimbursements	251,020	0	2568	253,587

Table A3. Basic descriptives of educational services in the Finnish HBS 2012.

	Number of households receiving benefit	% of all households	Average per household receiving (Euro)	Total sum, (million Euro)	% of total
Education services, total	1,165,651	44.9 %	7,535	8,783	100.0 %
- Primary, secondary and tertiary education	838,369	32.3 %	9,973	8,361	95.2 %
Primary	370,181	14.3 %	11,590	4,290	48.8 %
Pre-primary	64,242	2.5 %	2,858	184	2.1 %
Primary	338,409	13.0 %	12,136	4,107	46.8 %
Secondary	356,784	13.7 %	6,565	2,374	27.0 %
Upper secondary, general	113,622	4.4 %	6,811	774	8.8 %
Vocational	260,001	10.0 %	6,157	1,601	18.2 %
Tertiary	299,429	11.5 %	5,664	1,696	19.3 %
Polytechnic	137,967	5.3 %	6,177	852	9.7 %
University	171,761	6.6 %	4,912	844	9.6 %
Other	522,927	20.2 %	808	422	4.8 %
Open college	455,055	17.5 %	458	209	2.4 %
Labour market training	77,597	3.0 %	2,756	214	2.4 %

Table A4. Basic descriptives of educational services in the UK HBS 2012.

	Number of households receiving benefit	% of all households	Average per household receiving (Euro)	Total sum, (million Euro)	% of total
Pre-Primary (nursery)	799,170	3.0%	11,209	8,958	11.0%
Primary/Secondary (including special schools)	4,966,360	18.7%	10,033	49,830	61.3%
<i>Primary (age 4-10)</i>	3,408,670	12.9%	7,362	25,094	30.9%
<i>Secondary (age 11-16)</i>	2,365,330	8.9%	8,087	19,129	23.5%
<i>Special schools</i>	202,260	0.8%	27,717	5,606	6.9%
Post-16 education	1,747,060	6.6%	7,182	12,547	15.4%
<i>School sixth form</i>	580,040	2.2%	6,889	3,996	4.9%
<i>FE/sixth form college</i>	1,206,940	4.6%	7,085	8,551	10.5%
Tertiary (Higher Education)	1,227,990	4.6%	6,780	8,326	10.2%
School meals/Healthy Start vouchers	1,547,080	5.8%	1,020	1,578	1.9%
Education services (total)	7,414,730	28.0%	10,956	81,239	100.0%

Table A5. Concentration of equivalised social transfers kind by equivalent disposable cash income classes (modified OECD, person weighting), Finland, HBS 2012.

Equivalent income, % of median	% of column total				
	Education	Health	Social services	STIK, total	Equivalent disposable income
Poor (0-60 %)	22	17	19	19	8
Middle (60-140 %)	65	69	65	67	58
Top (above 140 %)	13	14	16	14	33
All	100	100	100	100	100

Table A6. Relative income poverty measures in Finland, HBS 2012, health services based on actual consumption approach

	Cash, modified OECD	Cash + STIK, modified OECD	Cash+STIK, SNA scale
Median income	23 636	30 132	24 428
Persons below 50 % of median	329 300	318 000	304 500
% of all persons	6.2 %	6.0 %	5.7 %
Persons below 60 % of median	700 400	660 000	614 000
% of all persons	13.1 %	12.4 %	11.5 %
Children (0-17 years) in households below 60 % of median	11.9 %	3.4 %	6.4 %
Poverty gap (median), 60 % of median	15.9 %	15.7 %	16.4 %
Poverty rate, 60 %, Aaberge et. al. (2013, p. 28)	12.8 %	9.2 %	6.5 %

Figure A1. Age distribution of the income poor in Finland, with and without STIK. HBS 2012, health services based on actual consumption approach.

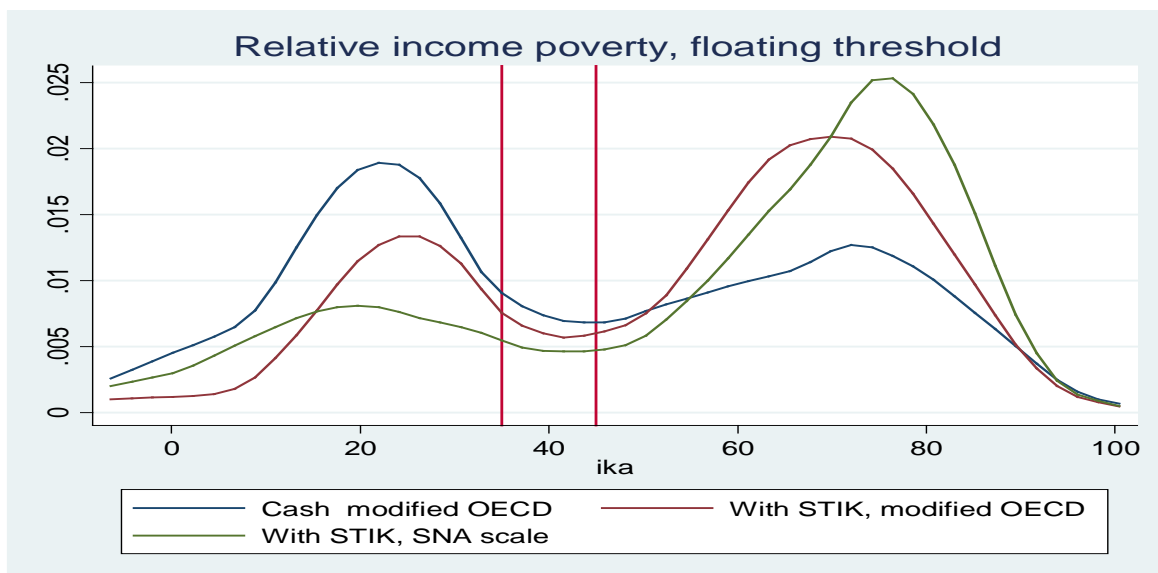
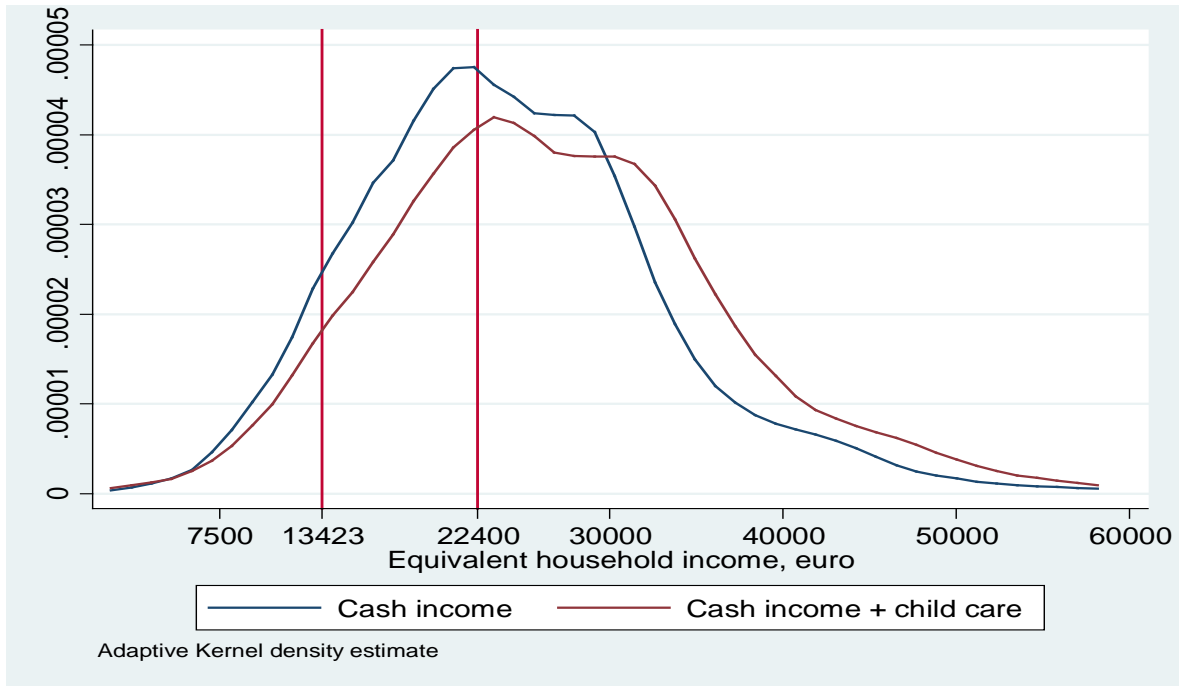


Figure A2. Distribution of equivalent income with and without child care benefits, household with children under 7 years, modified OECD scale. Finland, HBS 2012, health services based on actual consumption approach.



Annex 2. Distributional impact of sub-components of STIK in Finland

This annex describes the partial distributional impact of the detailed sub-components of STIK in Finland.

Regarding the distributive impact of **education services**, primary education should be the most redistributive as it comes close to being a lump-sum transfer to all households with children of compulsory school age. There's also clustering of beneficiaries, i.e. school-age children, within households. Previous studies indeed indicate that primary education tends to reduce income disparities.

The Table A2.1 indicates that all types of educational services decrease Gini-coefficient in Finland, although the magnitude of the reduction depends on the equivalence scale. It is difficult to assess differences between the levels of education, but also tertiary education reduces Gini-coefficient. The impact on the level equivalent disposable income appears to be around 10 per cent. The results on income poverty are mixed and sensitive to equivalence scale. For instance, imputation of only tertiary education reduces poverty rates by a percentage point using modified OECD scale but with SNA scale it more or less stays *the same*.

Table A2.1. Partial impact of educational services on income inequality, Finland, HBS 2012.

	Modified OECD scale			Simplified need adjusted scale		
	Gini	Relative mean income	Income poverty rate (60 %)	Gini	Relative mean income	Income poverty rate (60 %)
Cash disposable income	25.1	1.00	13.1	27.1	1.00	14.5
+ Primary	24.4	1.06	14.0	25.5	1.05	13.3
+ Secondary	24.5	1.03	13.1	26.3	1.02	14.0
+ Primary and secondary	23.9	1.09	14.9	24.8	1.07	13.3
+ Tertiary	24.6	1.02	12.2	26.8	1.02	14.4
+ Primary, secondary and tertiary	23.4	1.10	13.7	24.4	1.09	12.7

Note: other educational services not included (open college, labour market training).

The impact of in-kind **health care** benefits on poverty rate and Gini is mostly due to the public health care system. The effect of reimbursements for the use private health care services and prescribed medicine use seems to be miniscule.

Health care services were imputed both with insurance-based and actual consumption methods. Table A2.2 compares the partial impact of these two methods on inequality and poverty. It shows that poverty rate is clearly lower when the insurance based approach is used. Although effect is closer to the previous results by Aalberg et al. the redistributive impact of STIK is still smaller according to HBS data. We don't have a clear understanding why this is and it should be further investigated.

Table A2.2 Impact of health services on income inequality, Finland, HBS 2012.

	Modified OECD scale			Simplified need adjusted scale		
	Gini	Mean income	Income poverty rate (60 %)	Gini	Mean income	Income poverty rate (60 %)
Disposable cash income	25.1	25 935	13.1	27.1	21 746	14.5
+ public health care (AC)	24.1	27 590	11.8	26.1	23 099	13.2
+ private health care (AC)	25.1	26 057	13.0	27.1	21 849	14.6
+ medicine reimbursements (AC)	24.9	26 201	12.8	27.0	21 969	14.1
Disposable cash income						
+ health care services (AC)	24.1	28 103	11.8	26.0	23 526	13.4
+ health care services (IC)	23.1	28 147	10.2	25.0	23 545	10.8
Full STIK-augmented income (AC)	22.3	31 514	12.5	23.0	26 117	11.1
Full STIK-augmented income (IC)	21.5	31 558	10.8	22.2	26 136	9.9

The use of **child care services** is closely related to employment of household member. Nearly 90 per cent of households benefiting from child care services had household head who was working. It follows that in-kind child care benefits concentrate more to those above income-based poverty thresholds. Either as an add-on to disposable cash income, or as a component of STIK-augmented income, social services have only a small effect on standard inequality indicators. The Gini of extended income with education, health, and social services stands at 23.1 per cent, while it is 23.3 per cent if social services are excluded.

Social services seems to have more impact on income poverty rate, when considered jointly with education and health and with a "floating" poverty threshold (OECD, 2012), i.e. defined from the distribution of each income concept. Inclusion of social services in the STIK concept implies around half a percentage point *higher* income poverty rate, with both equivalence

scale options. The culprit seems to be child care services, since there is little difference between the indicators in the last two rows of the table.

Table A2.3. Impact of social services on income inequality and poverty, Finland, HBS 2012.

	Modified OECD scale			Simplified need adjusted scale		
	Gini	Mean income	Income poverty rate (60 %)	Gini	Mean income	Income poverty rate (60 %)
Disposable cash income	25.1 %	25 935	13.1	27.1 %	21 746	14.5
+ plus social services	25.0 %	26 508	13.0	26.8 %	22 182	14.0
Full STIK-augmented income	22.4 %	31 729	12.5	23.1 %	26 305	11.6
- without social services	22.3 %	31 157	11.9	23.3 %	25 869	11.0
- without social services except child care	22.2 %	31 204	11.8	23.2 %	25 905	10.9

While social services do not change the overall distribution of income much, they have a visible impact on some subgroups. The major role played by child care benefits and their correlation with household employment is visible when focusing on households with children (see Figure A2 in annex 1). If in-kind child care was included in income, the overall poverty rate would rise from 13.1 to 13.3, using the modified OECD scale. For two-parent families it would go down from 8.5 to 7.6 per cent. In-kind child care benefits increase the average income in this group by 10 percent and the distribution shifts to right, well above the median, which is shown by the higher reference line in the Figure A2 in the annex.