

OECD Social, Employment and Migration Working Papers
No. 130

# The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods

**Gerlinde Verbist,**

**Michael Förster,**

**Maria Vaalavuo**

https://dx.doi.org/10.1787/5k9h363c5szq-en

OECD

**Unclassified** **DELSA/ELSA/WD/SEM(2011)15**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **10-Jan-2012**

**English - Or. English**

**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**
**EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS COMMITTEE**

DELSA/ELSA/WD/SEM(2011)15
**Unclassified**

**OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS No. 130**

# The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods

**Gerlinde Verbist, Michael Förster, Maria Vaalavuo**

*Key words: Income distribution, in-kind transfers, public services*

*JEL codes: D31, H40, I30, I32, I38*

All Social, Employment and Migration Working Papers are now available through the OECD website at www.oecd/els/workingpapers

**JT03314131**

**Document complet disponible sur OLIS dans son format d'origine**
**Complete document available on OLIS in its original format**

**English - Or. English**

**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**

*www.oecd.org/els*

# OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS

*www.oecd.org/els/workingpapers*

This series is designed to make available to a wider readership selected labour market, social policy and migration studies prepared for use within the OECD. Authorship is usually collective, but principal writers are named. The papers are generally available only in their original language – English or French – with a summary in the other.

Comment on the series is welcome, and should be sent to the Directorate for Employment, Labour and Social Affairs, 2, rue André-Pascal, 75775 PARIS CEDEX 16, France.

The opinions expressed and arguments employed here are the responsibility of the author(s) and do not necessarily reflect those of the OECD.

**Applications for permission to reproduce or translate all or part of this material should be made to:**

**Head of Publications Service**
**OECD**
**2, rue André-Pascal**
**75775 Paris, CEDEX 16**
**France**

**Copyright OECD 2010**

**ACKNOWLEDGEMENTS**

We are grateful to Maryse Fesseau and colleagues from the OECD Statistics Directorate for comments on this work and to Maxime Ladaique (OECD Social Policy Division) for guidance on OECD social expenditure data. We gratefully acknowledge the suggestions provided by members of the Working Party on Social Policy and the OECD-Eurostat Expert Group to measure disparities in National Accounts. Finally, we are indebted to Rolf Aaberge (Statistics Norway), Joachim Frick and Markus Grabka (DIW Berlin) and Panos Tsakloglou (Athens University of Economics and Business) for the time they have taken and their invaluable support to discuss and apply alternative and innovative theories, concepts and methodology for the distributive analysis of social transfers in kind.

## ABSTRACT

This paper looks at how the income distribution in countries changes when the value of publicly-provided services to households is included. We consider five major categories of public services: education, health care, social housing, childcare and elderly care. On average across OECD countries, spending on these "in-kind" benefits accounts for about 13% of GDP, slightly more than the spending on cash transfers – but with considerable cross-country variation. Broadening the income concept to account for in-kind benefits considerably increases households' economic resources: in a typical OECD country, the average annual household income would be close to USD 28 000, rather than USD 22 000 in purchasing power parities. But public services also contribute to reducing income inequality, by between one-fifth and one-third depending on the inequality measure. Mexico and, according to most inequality measures, the United States, Portugal, Ireland, and the United Kingdom record higher reduction rates, while Slovenia records lower ones. Across all countries, redistributive effects are stronger among specific population groups at higher risk of poverty. Between 2000 and 2007, the redistributive impact of public services remained stable overall. However, the impact became stronger in countries where the share of services in household income increased significantly, while it weakened in those countries where this share decreased. The paper suggests that publicly provided services fulfil an important direct redistributive role in OECD countries.



## RÉSUMÉ

Ce document examine la façon dont la distribution des revenus varie dans les pays lorsque la valeur des services publics fournis aux ménages est inclue. L'imputation de la valeur de ces services dans les revenus des ménages et l'analyse de leur potentiel redistributif posent des défis méthodologiques importants, tels que l'estimation et l'allocation de ces services aux bénéficiaires, ou l'ajustement de l'échelle d'équivalence aux besoins associés à ces services. Nous présentons des analyses de sensibilité, en utilisant deux approches innovatrices mises en avant dans la littérature. Le document considère cinq grandes catégories de services publics: éducation, santé, logement social, garde d'enfants et soins aux personnes âgées. En moyenne, dans les pays de l'OCDE, les dépenses relatives à ces prestations «en nature» s'élèvent à environ 13% du PIB, soit légèrement plus que les dépenses relatives aux transferts en espèces- mais avec beaucoup variations entre pays. Elargir le concept de revenu pour tenir compte des avantages « en nature » augmente considérablement les ressources économiques des ménages: dans un pays typique de l'OCDE, le revenu annuel moyen des ménages serait proche de 28 000 USD, plutôt que 22 000 USD en parité de pouvoir d'achat. Mais les services publics contribuent également à réduire l'inégalité de revenus, d'un cinquième à un tiers en fonction de la mesure d'inégalité. Le Mexique et, selon la plupart des mesures d'inégalités, les États-Unis, le Portugal, l'Irlande et le Royaume-Uni enregistrent des taux de réduction plus élevés, tandis que la Slovénie enregistre des taux de réduction plus faibles. Dans tous les pays, les effets redistributifs sont plus forts parmi les groupes de population spécifiques à risque de pauvreté plus élevé. Entre 2000 et 2007, l'impact redistributif des services publics est resté globalement stable. Toutefois, l'impact est devenu plus fort dans les pays où la part des services dans les revenus des ménages a augmenté de manière significative, alors qu'il s'est affaibli dans les pays où cette part a diminué. Le document suggère que les services publics remplissent un rôle de redistribution directe important dans les pays de l'OCDE.

**TABLE OF CONTENTS**

ACKNOWLEDGEMENTS ....3

ABSTRACT ....4

RÉSUMÉ ....4

1. INTRODUCTION ....8

2. OVERVIEW OF SOCIAL PUBLIC SERVICES: DEFINITION AND IMPORTANCE ....11

3. HOW TO ACCOUNT FOR PUBLICLY PROVIDED SERVICES IN HOUSEHOLD INCOME: CONCEPTUAL ISSUES AND METHODOLOGY ....13

3.1 Data ....13
3.2 How to value public services and allocate those to individuals and households? ....13
3.3 The allocation of education services: actual use approach ....14
3.4 The allocation of health care services: insurance-value approach ....15
3.5 Social housing: a regression-based actual use approach ....17
3.6 Early childhood education and childcare services (ECEC): actual use approach ....20
3.7 Long-term elderly care services: insurance-value approach ....21
3.8 Adjusting for differences in needs ....22
3.8.1 What equivalence scale should be applied for in-kind benefits? ....22
3.8.2 A theoretically derived equivalence scale based on minimum expenditures of public services ....24
3.8.2.1 Theoretical model ....24
3.8.2.2 Target groups for needs adjustment ....26
3.8.2.3 Constructing an equivalence scale adjusted for needs associated with public services. ....27
3.8.3 A sensitivity analysis on the equivalence scale for differences in spending on public services across countries ....28
3.9 Indicators to assess the pro-poorness of publicly provided services ....30
3.9.1 Should a "fixed" or a "floating" poverty line be used? ....30
3.9.2 The role of compositional factors for interpreting results of services' impacts on poverty patterns ....31
3.9.3 Poverty reduction potential of in-kind benefits ....31

4. THE IMPACT OF IN-KIND BENEFITS ON INCOME DISTRIBUTION AND POVERTY ....32

4.1 The distributive impact of publicly provided in-kind benefits taken together ....32
4.2 The impact of publicly provided in-kind benefits on poverty ....37
4.3 The sensitivity of results for alternative specifications of the equivalence scale ....39
4.5 The distributive impact of education services ....40
4.6 The distributive impact of health care services ....45
4.7 The distributive impact of social housing ....48
4.8 The distributive impact of early childhood education and childcare services ....51
4.9 The distributive impact of long term elderly care services ....54

5. THE DISTRIBUTIVE IMPACT OF PUBLIC SERVICES OVER TIME ....57

5. SUMMARY AND CONCLUSION ..... 61
5.1 Identifying the size of social public services ..... 61
5.2 Valuating and allocating public services: methodological challenges ..... 61
5.3 The distributive impact of public services ..... 62
ANNEX 1: ADDITIONAL TABLES AND FIGURES ..... 65
ANNEX 2: DATA SOURCES FOR ECEC AND LTC ..... 75
REFERENCES ..... 78

**Tables**

Table 1. Summary of allocation methods for different public services ..... 14
Table 2: Method used to estimate imputed rent for social renters and frequency of different categories of tenure status (households) ..... 19
Table 3. Share of Age Group Using Services for Elderly People. ..... 22
Table 4. Imputation of education services in household income for a typical low-income family with two children, example with three alternatives ..... 24
Table 5. Equivalence scales for cash and non-cash incomes by household type ..... 28
Table 6: Poverty reduction after imputing education and health care services, seven OECD countries, results from earlier studies ..... 30
Table 7: In-kind benefits as a share of disposable income per quintile, average over 27 OECD-countries ..... 35
Table 8. Share of beneficiaries of social housing (SH) and in-kind benefit from social housing as a share of disposable income per quintile ..... 49
Table 9. Actual ECEC beneficiaries as a share of potential beneficiaries (children aged 0-6), by income quintile ..... 53
Table 10. Evolution of public expenditures on in-kind transfers, in percentage of GDP, 2000 – 2007. ..... 58
Table 11. Evolution of redistributive impact of publicly provided services, Gini coefficient, 2000 - 2007(*) ..... 59
Table A.1: Covariates used in the opportunity cost approach, EU-SILC 2007. ..... 65
Table A.2: Estimates of imputed rent for reduced rent tenants, after adding random error term (5 replications), EU-SILC 2007 ..... 66
Table A.3: Poverty thresholds used in the analysis (50%) of median equivalent income), single person, 2007. ..... 67
Table A.4: Share of age groups in total population, 2007. ..... 68
Table A.5. Inequality indicators for cash and extended income (total of public services) ..... 69
Table A.6. Change (%) in inequality indicators after inclusion of in-kind benefits from public services in income concept (education, health care, social housing (*), ECEC and LTC (**) services) ..... 70
Table A.7. Impact on inequality (S80/S20) of publicly provided services over time, 2000 and 2007 (*) 71

**Figures**

Figure 1. Public expenditure for in-kind and cash transfers, in percentage of GDP, 2007 ..... 9
Figure 2. Age-related expenditure profiles of health care provision (spending per capita as percent of GDP per capita) ..... 17
Figure 3. In-kind benefit from public services as a share of disposable income, 2007 ..... 33

Figure 4. In-kind benefit from public services as a share of disposable income for different age categories ....34
Figure 5. Distribution of value of total public services over quintiles, 2007. ....35
Figure 6. Gini coefficient before and after inclusion of all types of public services. ....36
Figure 7. Poverty rates before and after including total of public services, fixed and floating poverty line, 2007. ....37
Figure 8. Income advantage from public services and cash transfers going below the poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income ....39
Figure 9. Gini coefficient before and after inclusion of all types of public services, comparing three equivalence scales for extended income ....40
Figure 10. In-kind benefit from education services as a share of disposable income ....41
Figure 11. Distribution of education services over quintiles ....42
Figure 12. Gini coefficient before and after inclusion of public education services. ....43
Figure 13. In-kind benefit from education services going below poverty line as a share of the poverty gap of disposable income, total, by age group and by education level, poverty line at 50% of median equivalent income ....44
Figure 14. In-kind benefit from health care services as a share of disposable income ....45
Figure 15. Distribution of health care in-kind benefits over quintiles ....46
Figure 16. Gini coefficient before and after inclusion of public health care services. ....47
Figure 17. In-kind benefit from health care services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income ....48
Figure 18. Distribution of social housing benefit over quintiles ....50
Figure 19. In-kind benefit from social housing going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income ....50
Figure 20. In-kind benefit from ECEC services as a share of disposable income ....51
Figure 21. Distribution of ECEC in-kind benefits over quintiles ....52
Figure 22. Income advantage from ECEC services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income ....54
Figure 23. In-kind benefits for elderly care as a percentage of disposable income ....55
Figure 24. Distribution of elderly care expenditures over income quintiles ....56
Figure 25. Income advantage from LTC services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income ....57
Figure 26. Association between trends in expenditures on public services and changes in inequality reduction, 2000 - 2007 ....60
Figure A. 1 Distribution of beneficiaries of compulsory education over quintiles ....72
Figure A. 2 Distribution of beneficiaries of upper-secondary education over quintiles ....72
Figure A. 3 Distribution of beneficiaries of tertiary education over quintiles ....73
Figure A. 4 : Distribution of beneficiaries of social housing over quintiles ....73
Figure A.5. Distribution of ECEC beneficiaries over income quintiles ....74
Figure A.6. Distribution of elderly care beneficiaries over income quintiles ....74

**Boxes**

Box 1. Other services: public transport subsidies and public utilities ....12

# 1. INTRODUCTION

1. The economic well-being of households is determined, to a large extent, by households' disposable cash income. Cash incomes, however, exclude a range of flows that affect a household's consumption possibilities and their capacity to attend to their needs. These include services provided by firms as well as other resources such as time and home production that contribute to households' living standards and their capacity to attend to their needs. Among the most important factors which are omitted from the "standard" accounting framework are government activities that impact on household well-being through the in-kind services they provide.

2. Recently, the Commission on the Measurement of Economic Performance and Social Progress led by Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi published its final report examining measures of well-being (www.stiglitz-sen-fitoussi.fr). One of its recommendations is that household income should reflect in-kind services provided by the government, such as subsidized health care and educational services.

3. In addition to influencing the overall economic well-being of households, publicly provided services also impact on the *distribution* of resources across households and it can be expected that this impact is not the same across countries. Recent years have therefore seen an increasing academic literature on the distributive implications of publicly-provided services (see Marical *et al.* 2006 & 2008, OECD, 2008a; Sutherland and Tsakloglou, 2009; Tsakloglou *et al.*, 2009 and Vaalavuo, 2010).

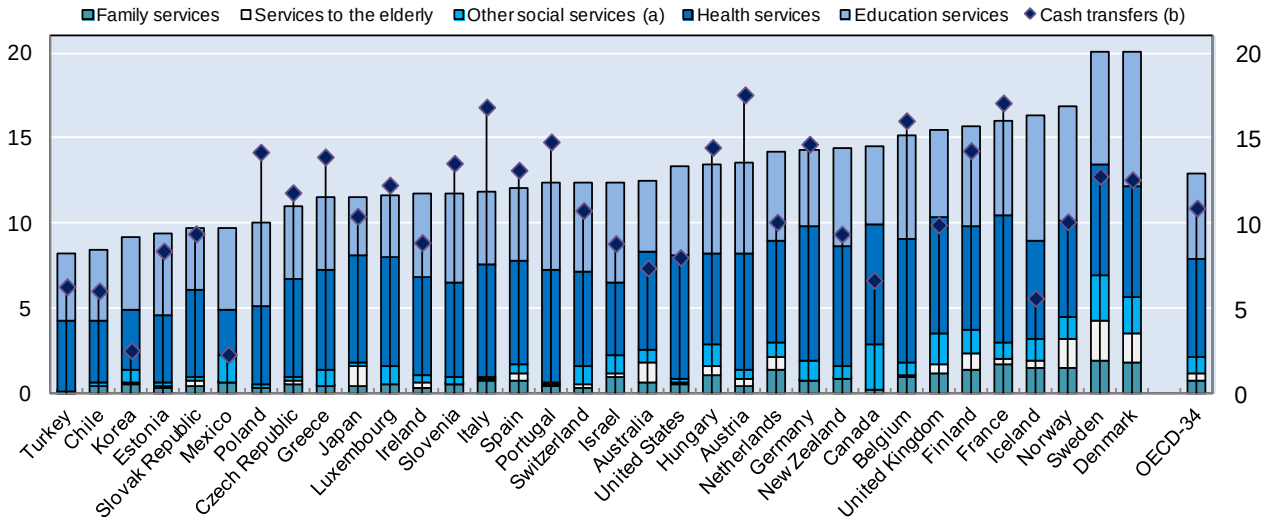
4. Most of the available comparative empirical evidence on levels and trends in income inequalities and poverty in OECD countries relies on the concept of household disposable *cash* income, thus ignoring the services governments provide to households. Including those services matters a lot, however, for policy interpretation. [1] First, some countries rely more on in-kind benefits rather than cash transfers. When, for instance, country A heavily subsidizes education, whereas country B primarily relies on private schools funded by fees, this difference will not show up in traditional income distribution statistics, even though the financial implications for the households in the two countries will differ considerably. Second, households see their income reduced due to taxes, so it is important to account for the benefits of the services that are funded through taxes

5. The volume of publicly-provided services – health, education and family services as well as social services for elderly, survivors, disabled persons, unemployed and those in respect of housing and social assistance – varies considerably across countries (Figure 1). For the most recent available year, these services constitute about 13% of GDP on average across the 34 OECD countries, ranging from close to 8% in Turkey and Chile to 20% in Denmark and Sweden. On average, health care and education services account for 5 to 6 percentage points each. The remaining 2% are made up mainly of care services for children and the elderly; the latter are particularly important in the Nordic countries, Australia and Japan where they exceed 1% of GDP.

[1] A growing number of government studies in OECD countries include the effect of services in their regular reports on the distributional impact of policies. An example is the United Kingdom's Spending Review carried out by HM treasury, see http://www.hm-treasury.gov.uk/spend_sr2010_impact_households.htm

6. On OECD average, more spending goes to these services than to cash transfers which amount to 11% of GDP on average. This is because in some countries, the relative share of services is considerably higher. This is particularly the case in Mexico, Korea, Iceland, Canada and the United States. By contrast, services play a less important role than cash transfers in many EU countries, and particularly so in Austria, Italy and Poland.

**Figure 1. Public expenditure for in-kind and cash transfers, in percentage of GDP, 2007**




Note: Countries are ranked in increasing order of total expenditure on all social services. Data on education services for Greece, Luxembourg and Turkey refer to 2005.

(a) Other social services include services to survivors, disabled persons, unemployed, as well as those in respect of housing and social assistance (estimates of social housing are, however, not included).

(b) Cash transfers to the elderly, survivors, disabled persons, families, unemployed, as well as those in respect of social assistance.

Source: OECD Social Expenditure database, OECD Education database, OECD Health database.

7. How does inequality change once publicly-provided services are taken into account? In a first analysis OECD (2008a) found that education, health care and social housing significantly lowered income inequality was on measures for a year around 2000 in 17 OECD countries (about one quarter on average). But public services typically reduced inequality by less than cash transfers were able to do, which amounts to a reduction of about one third. Another finding was that differences between countries in inequality were somewhat lower once public services are taken into account than when comparing only cash incomes. These results highlighted the importance of taking account of this redistributive impact when making policy choices about these programmes.

8. The present study goes beyond these preliminary analyses in several ways. First, it includes ten additional OECD countries and up-dates the estimates to the late 2000s, thus revealing changes in the distributive impact of services since the early 2000s. Second, it considers additional public services, in particular care for children and the elderly and the distributive impact of specific policies on specific groups of the population. Third, it analyses also the effects on low-income households and poverty specifically. Finally, the chapter also reports some estimates based on alternative and recently developed methods to impute services into household income.

9. Considering the influence of government services on the distribution of household income requires broadening the definition of household income, from the more narrow concept of disposable

income – i.e. the sum of market income (earnings, rents, dividends, etc.) and cash transfers (from both public and private sources) less direct taxes and social security contributions paid by households – to one that includes additional non-market elements, such as government-provided services, home production[2] and other components that are usually omitted from conventional statistics. Incorporating the value of government services in household income raises a range of questions, some of which are conceptual, and others are methodological (see e.g. Marical *et al.* 2006; Garfinkel *et al.* 2006; OECD 2008a; Aaberge et al. 2010a; Paulus et al., 2010), in particular:

a) Which of the government services should be included for the analysis of the impact on poverty?

b) How to value public services?

c) How to allocate the value of government services among individuals and households?

d) Can the same equivalence scale be used for cash and non-cash incomes, or does the inclusion of non-cash incomes require a different approach?

10. Chapter 2 below considers question a) and provides a definition and overview of public services to households and its characteristics. Apart from the three services that have been traditionally considered when including in-kind benefits (namely education, health care and social housing), also three other categories are discussed, i.e. services for early childhood education and childcare, long-term elderly care services, and subsidies for public transport and public utilities[3].

11. Chapter 3 discusses the remaining three of the above questions, questions b) through d). Compared to OECD (2008a) a more refined methodology is presented for estimating the value of social housing for its beneficiaries. Also, valuation and allocation methods for early childhood education and childcare services and long-term elderly care services are proposed. Further, this chapter addresses methodological and conceptual issues in choosing an appropriate equivalence scale for in-kind benefits. The use of the "traditional" cash income equivalence scale is compared with that of two innovative approaches that have recently been developed in the literature to account for the differences in needs between cash and in-kind income. Chapter 3 also proposes an alternative indicator for capturing the possible poverty impact of public services.

12. On the basis of these methodological choices, Chapter 4 presents the empirical results for the distributive effects of services, based on micro data from EU-SILC, LIS and HILDA, as well as other available OECD and EU data. Chapter 5 concludes.

[2] The value of home production is not considered in this paper, neither the value of in-kind benefits from private sources. A recent discussion of the value of home production based on time use surveys can be found in Miranda (2011).

[3] Due to lack of data, this last category can, however, not be empirically investigated in this paper.

## 2. OVERVIEW OF SOCIAL PUBLIC SERVICES: DEFINITION AND IMPORTANCE

13. The focus here is on public *social* expenditures[4], which are social spending flows controlled by General Government (i.e. different levels of government and social security funds), thus excluding pure public goods, like national defence and justice[5]. Hence, it involves only those expenditures that can be attributed to an individual beneficiary and that are excludable. Public education and health care expenditures are by far the two major categories of this kind of expenditures, as illustrated in Figure 1.

14. In all OECD countries except Estonia, Iceland, Israel, Korea, Mexico and Turkey, public health care services form the most important category of public services to households (see Figure 1). On average, public spending on health care services amounts to around 6% of GDP, constituting the largest part of total health spending of around 9% of GDP (OECD Health Data). Total health spending is by far highest in the United States, with more than half accounted for by private health spending. Among European countries, France, Germany, Austria and Belgium are the countries with the highest levels of overall spending on health care (in excess of 10%), whereas Estonia, Poland and the Czech Republic spend the least (below 7%). Differences across countries are also substantial when only public expenditures are considered, ranging from 2.6% (Mexico) to almost 8% (Germany and France).

15. Public investment in education is also considerable. The highest education expenditures of more than 6% of GDP are found in the Nordic countries and in Belgium. Lower levels are found in the Slovak Republic, Japan and Luxembourg[6]. In all countries, primary to below-tertiary education make up by far the largest share of public education expenditures (OECD 2010), while tertiary education accounts for more than 1% in most countries.

16. While cash housing benefits are generally included in household disposable income, the effect of social housing is not accounted for. This may provide a misleading picture of the impact of overall housing policies on inequality and poverty, as some countries use different policies to help households meet their housing expenses (Gardiner *et al.*, 1995; Whitehead and Scanlon 2007). Unfortunately, no internationally comparative estimates of the relative level of social housing as a share of GDP are available. The scale of social housing and the conditions of access vary considerably across countries, with relatively high shares (almost 20% of total housing) in countries like the Czech Republic, the United Kingdom, Denmark, France and the Netherlands (CECODHAS, http://www.cecodhas.org/; Whitehead and Scanlon, 2007). Also conditions of access to social housing vary considerably from one country to another. In the Netherlands and Sweden, access to social housing is not explicitly linked to individuals' resources, while Belgium and Germany, for example, means-test access to social housing (Andrews *et al*., 2011).

17. Services to families refer largely to Early Childhood Education and Childcare (ECEC). Access to affordable childcare is one of the key elements of strategies to reconcile work and family life, promote

[4] Social expenditure are defined as "the provision by public and private institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an individual contract or transfer." (Adema & Ladaique, 2009)

[5] Though part of these expenditures may have an explicit social aim and can be attributed to a specific individual beneficiary, as for instance in the case of free legal support.

[6] The spending level in Luxembourg does not include tertiary education.

equal opportunities and combat social exclusion (Matsaganis and Verbist 2009; OECD 2011a). Limited and unequal access to childcare services perpetuates social inequalities, whereas investment in early education can protect children from further social disadvantages and contribute to more equality. With 1% or more of GDP, these services are important in all Nordic countries, as well as in France, Hungary and the United Kingdom (see Figure 1). Pre-primary education is a more important category than childcare in most countries (OECD, Family Database). In countries with high enrolment rates in formal care for under 3 year old, public spending on childcare is accordingly high. This is notably the case in the Nordic countries, France and the United Kingdom.

18. Elderly care has emerged as a major social policy concern in OECD countries more recently (Österle 2002; OECD 2005b and 2011b; Da Roit *et al.* 2007; European Commission 2006; Pavolini and Ranci 2008). The proportion of GDP spent on long-term care is estimated to at least double and possibly triple by 2050 (OECD 2005b; Comas-Herrera *et al.* 2006). More than two thirds of the people aged over 70 years are expected to need help in performing at least one or two daily routines (Eurofound 2006; WHO 2008). Public expenditures on services for the elderly vary between 0.1 per cent of GDP in Estonia and 2.5 per cent in the Netherlands (Huber *et al.* 2009). The variation in expenditure levels is substantially greater than for other public spending, such as health care (see also Jensen 2008). According to estimates by the European Union (EC 2006), public spending on long-term care will increase by around 1 percentage point between 2004 and 2050 in most member states, and by over 2 percentage points in Finland, Sweden and Slovenia due to their more developed formal care system.

**Box 1. Other services: public transport subsidies and public utilities**

Apart from the public social services discussed above, other policy domains of public services have a specific social aim, as they involve interpersonal redistribution and may affect the standard of living of households and individuals. Major examples are subsidies for public transportation, as well as support for energy costs and other utilities. Note that these services are not included in Figure 1, as national estimates for these categories are rare.

Subsidies on public transport basically have an economic efficiency rationale (Parry & Small, 2009). This means that economies of scale imply that the marginal cost of supplying mobility is less than the average cost. Moreover, by stimulating the use of public transport private car use and related negative externalities may be reduced. But apart from this efficiency rationale, social arguments play a role, namely that these subsidies intend to make mobility more affordable, especially to low-income groups.

Most research on the effect of public transport subsidies has focused on the economic efficiency reasons, thereby largely ignoring distributive aspects. These aspects can be direct, by reducing the financial cost of mobility or indirect, by increasing the labour market opportunities of the beneficiaries. Most of existing research is on urban public transport. A number of studies investigate the pro-poorness of public transport subsidies. These studies deal in general with a confined geographical area, such as large cities. Recent research includes Asensio et al. (2003), Carruthers, Dick and Saurkar (2005) and Estupiñán et al. (2007). Fearnley (2006) and Jones (2008) are among the rare studies that provide national estimates, both for the United Kingdom. They find that public transport subsidies appear to make the poorest better off, though there is variation by mode of transportation (e.g. bus travel subsidies turned out be more pro-poor than those for rail transport) as well as by geographical location.

Apart from public transport, also utilities like energy and communication services are provided by the government to the public at below-market prices, or entail provisions for low-income or other target groups. Nolan and Russel (2001) for instance investigate the distributive effect of the so-called “free schemes” (for electricity/gas, TV license, telephone rental, and free travel) and the Medical Card in Ireland and find that these free schemes are more beneficial to the lower income groups, hence reducing inequality and relative poverty (the latter by about one fifth). The possible redistributive impact of benefits that are associated specifically with energy provisions is likely to become an important policy issue in the future, given the importance of climate change and evolutions of energy prices. Many national programmes to subsidise energy use have broadly two aims: first aim, to ensure affordable energy (electricity, gas, fuel) for low-income and other vulnerable groups; second, and more recently, to stimulate the use of renewable energy sources.

# 3. HOW TO ACCOUNT FOR PUBLICLY PROVIDED SERVICES IN HOUSEHOLD INCOME: CONCEPTUAL ISSUES AND METHODOLOGY

19. Including publicly-provided services in the analysis of inequality raises a number of conceptual and methodological issues, since the value of government services needs to be incorporated into individual household incomes and "extended income" needs to be estimated. The first section of this chapter briefly presents the data used for the empirical analysis in this project. In the second section, the issue of how to value and allocate publicly provided services is addressed in general terms. The subsequent sections describe which methods have been applied to value and allocate services for the five major categories: education, health care, social housing, early childhood education and long-term elderly care services, respectively. A separate section is devoted to the complex issue of adjusting the equivalence scale for the needs associated with public services and presents two recently published innovative methodologies. The final section presents and discusses the indicators for estimating the poverty alleviation of public services, including an alternative indicator which looks at the poverty reduction potential of services.

## 3.1 Data

20. The empirical analyses in this project are carried out on 2007 micro data from the European Union Survey on Income and Living Conditions (EU SILC) which is available for 24 EU countries as well as for Iceland and Norway. The income reference period is 2006. For Australia, the 2007 wave of Household, Income and Labour Dynamics in Australia (HILDA) was used, and calculations for Canada, Mexico and the United States are performed using data from the Luxembourg Income Study, referring to the income year 2004.

21. Estimates of the value of public services are derived from various sources, in particular the OECD Social Expenditure Database (www.oecd.org/els/social/expenditure). For education, the OECD Education Online Database was used. For health care, age profiles available from the European Commission and the Economic Policy Committee (2009) and from OECD (2006) were used. For social housing, the monetary benefit that stems from free or reduced rent housing was estimated by applying regression analyses on the micro data of EU-SILC. For child and elderly care, data come from various national sources, which are described in the Annex 2.

## 3.2 How to value public services and allocate those to individuals and households?

22. The standard way to estimate the monetary value of public services is to use a production cost approach (see Aaberge and Langørgen, 2006; Marical *et al*., 2008; Smeeding *et al*., 1993). This means that the transfer to the beneficiaries is assumed to equal the average cost of providing or producing these public services. In other words, one USD spent on services in assumed to equal one USD worth to households or individuals. It is important to note that this approach neglects differences within and across countries in the quality and efficiency in the provision of these services. Moreover, this approach does not necessarily reflect the user's value of the service, as the public service cannot (easily) be exchanged for other goods. For all the services studied in this paper, the production cost is used, with the exception of social housing, where the value of the benefit is derived from prevailing market rents.

23. A second issue is how to allocate these benefits across the population. In the literature two approaches have been distinguished, namely the "actual consumption approach" and the "insurance value approach" (see e.g. Marical *et al*., 2008). The actual consumption approach allocates the value of public services to the individuals that are actually using the service. For most services, the actual consumption

approach will be the most appropriate, if actual beneficiaries can be identified. In some cases an insurance value approach may be applicable or even preferable. Such an approach imputes the 'insurance value' of coverage to each person based on specific characteristics (such as age, sex, socio-economic position). For instance, in much of the literature the actual consumption approach is considered to be less appropriate in the case of health care, as it ignores the greater needs that are associated with being ill. Hence, the insurance value approach is preferred. Table 1 summarises which of the two approaches are proposed for nine different service categories, and which have been used for the five services in this study.

**Table 1. Summary of allocation methods for different public services**

| Public service | Allocation method | Beneficiaries |
|---|---|---|
| Education | AC | Pupils and students |
| Health care | IV | All individuals covered by public health |
| Social housing | AC | Residents of social housing unit |
| Early childhood education and care | AC | Young children in public childcare and pre-primary education |
| Long-term elderly care | IV | All elderly people covered by the system |
| Incapacity-related | AC | Individuals that suffer from incapacity and use related publicly provided services |
| Active labour market programmes (ALM) | AC | Individuals participating in ALM programmes |
| Public transport | AC | Passengers of public transport |
| Public utilities, e.g. energy, communication | AC | Users of public utilities |

Note: AC = Actual consumption; IV = insurance value.

### 3.3 The allocation of education services: actual use approach

24. The standard method in the literature to include benefits that households derive from education services is the *actual use approach* (see e.g. Antoninis and Tsakloglou, 2001; Garfinkel *et al.*, 2006; Callan *et al.*, 2008). This means that the beneficiaries of education are the pupils and students that are currently using these services. Actual participation is largely determined by age, but also by other factors, such as individuals' social background and income. In principle, all individuals of compulsory school age benefit from education, which makes the approach to allocate public expenditure based on age for this group *a priori* justifiable[7]. Social background plays a more important role for participation in other education levels, such as pre-primary education and tertiary education; hence, actual participation should be considered. Enrolment rates are almost universal for children aged 5 to 14 and relatively high for individuals aged 15 to 19: the average in the OECD is 82% with lower rates in e.g. Turkey (46%) and Mexico (52%) and higher rates in Belgium (92%), Poland (93%) and Slovenia (91%). For the older groups

[7] The starting age of compulsory education is 6 in most countries, whereas some countries start earlier at age 5 (Hungary, Mexico, the Netherlands, New Zealand and the United Kingdom), and others at age 7 (Denmark, Estonia, Finland, Poland and Sweden) (see OECD 2010). Ending age of compulsory education varies between 14 and 18 years. 90% of the population are enrolled in education for at least 13 years, ranging from 11 (e.g. Greece) to 15 years (Belgium, France, Norway and Sweden). A small minority of children (often from disadvantaged background) do not attend school at this age. According to OECD (2008b), 1.5% of children aged between 5 and 14 are not enrolled in school, on average across OECD countries.

(20 to 29 year old), enrolment rates are much lower, ranging from less than 10% in Luxembourg (where most higher education students study abroad) to 43% in Finland.

25. Information on actual participation in different types of education is in general available in the databases used for individuals aged 16 or older. For younger individuals, age is used to determine participation[8]. No distinction could be made in the surveys between participation in publicly or privately funded education institutions[9], nor between general and technical secondary education, nor between Type A and Type B tertiary education[10]; hence, these breakdowns could not be applied either. The breakdown applied in this paper refers to the revised International Standard Classification of Education (ISCED-97): pre-primary[11], primary, lower secondary, upper secondary, post-secondary non-tertiary and tertiary education.

26. Each pupil or student that participates in a publicly funded education institution is assigned a public education transfer that equals the cost of producing these services in the corresponding level of education, according to National Accounts data. Public educational expenditure refers to total direct government expenditures for educational institutions per education level, converted to a 'per student' basis through data on the number of students in each level. These data are obtained from the OECD Education Database for OECD countries, which distinguishes per student expenditures for pre-primary, primary, lower-secondary, upper-secondary, post-secondary non-tertiary and tertiary education. For tertiary education, direct expenditures for research and development activities are excluded, as they do not have education as their primary aim (even though there are of course indirect benefits from R&D towards students). All education expenditure amounts are imputed to the identified beneficiaries and then added to the income of the households where they live, by average public spending per student at the relevant educational level.

### 3.4 The allocation of health care services: insurance-value approach

27. Health care is one of the largest government expenditure items. In order to estimate the distributive effects of public health care services in this study, household incomes are increased by the imputed monetary value of public health care services. Two main approaches can be distinguished to attribute to individuals the benefits from public health care services and have been applied empirically, namely the *actual consumption approach* on the one hand and the *insurance-value approach* on the other.

28. Studies that use the actual consumption approach base their analyses on detailed data on the effective use of health care services by individuals (see e.g. Evandrou *et al*. (1993) and Sefton (2002) for the UK); they concluded that public health care expenditures lower income inequality. This approach is, however, only feasible if information is available on the actual use of health care services, which is often

8 The probability of participating in a specific education level is derived from net enrolment rates by single year of age presented in *Education at a Glance*. Information on actual use of pre-primary education is used when available in the survey.

9 Enrolment in private schools may lead to an underestimation of the poverty impact of public education services if these students are mainly from better-off families and if public subsidies to private schools are lower than the costs of public schools.

10 Tertiary-type A programmes (ISCED 5A) are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Tertiary-type B programmes (ISCED 5B) are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market.

11 Pre-primary education is in the empirical analysis included under Early Childhood Education and Childcare (see section 3.6).

lacking in income surveys. In addition, a fundamental critique often raised against the actual use approach is that it ignores the greater needs that are associated with being ill, in the absence of an equivalence scale that adjusts for health status (see e.g. Aaberge *et al.*, 2006). The actual consumption approach implies that sick people are ceteris paribus better off than healthy people because they receive more health care services. Moreover, research has indicated that poorer people have in general worse health conditions, and consequently greater needs for health care (see e.g. Hernández-Quevedo *et al*., 2006).

29. As an alternative, the insurance-value approach is the most frequently used analytical method and imputes the 'insurance value' of coverage to each person based on specific characteristics (such as age, sex, socio-economic position).[12] The insurance value is the amount that an insured person would have to pay in each category (e.g. age group) so that the third-party provider (government, employer, other insurer) would have just enough revenue to cover all claims for such persons (see Smeeding, 1982). It is based on the notion that what the government provides is equivalent to funding an insurance policy where the value of the premium is the same for everybody sharing the same characteristics, such as age (Marical *et al*., 2006). Most studies which use the insurance-value approach impute public health care expenditures on the basis of people's age; they report a significant decrease in inequality.

30. These two alternative approaches can lead to different results. OECD (2008a) applies both the insurance-value and the actual consumption approach for health expenditures to eight European countries. On average, the distributive effect of health care expenditures turned out to be considerably lower using the actual consumption approach than using the insurance-value approach.

31. However, as argued in Smeeding *et al.* 2008, also the insurance value approach should take account of differences in health care needs as the specific characteristics on which the insurance value is based also relate to difference in needs. Hence, the authors advise to use the insurance-value approach combined with the introduction of an equivalence scale that incorporates health care needs. From a theoretical point of view this approach is the most appropriate, as different equivalence scales should be used in the distribution of disposable income on the one hand and of disposable income plus the value of health care services on the other. The logic behind this distinction is that the relative needs of individuals belonging to particular groups are probably different for public health care services and for other commodities paid out of cash income. Practical implementation of this approach, however, has so far not been possible due to the absence of a set of equivalence scales that covers the entire population[13]. As the issue of equivalence scales is crucial when studying the incorporation of services in distributive analyses, it is discussed in more detail in section 3.8.

32. As the datasets contain no information on use of health care services, the actual consumption approach cannot be applied here. Consequently, this study applies the insurance-value approach for health care services, which means that every individual is assumed to receive a public benefit determined by the average spending on his/her group, irrespective of whether actual use of health care services was made. The groups are determined by age and gender. Health expenditures per age group as a percentage of GDP per capita – so called "age profiles"- are available from the European Commission and the Economic Policy Committee (2009) for the EU countries and Norway, and from the OECD expenditure projections for health and long-term care for Australia, Canada, Iceland, Mexico and the United States (OECD, 2006). Multiplying these percentages with GDP per capita of the corresponding year provides an estimate of the

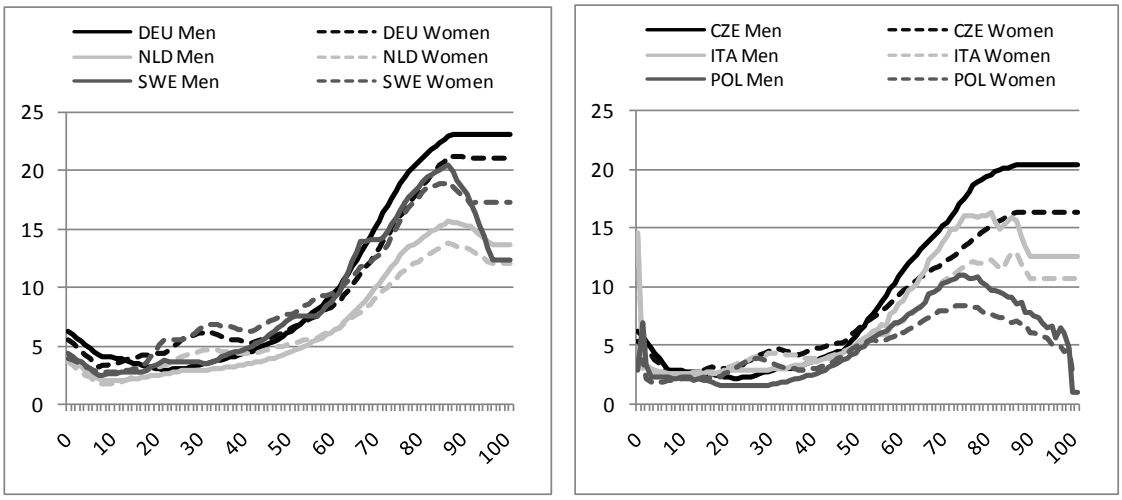
12 For instance, this approach was also followed most recently by INSEE for estimating the redistributive impact of in-kind services on the basis of National Accounts data (INSEE 2009).

13 Some empirical studies have developed such scales for specific groups or situations such as disability (see e.g. Jones and O'Donell, 1995; Berloffa *et al*, 2006; Zaidi and Burchardt, 2009), but these cannot be generalised to the entire population or to the total of health care services.

insurance value of health care services for each individual. Income of the households is then increased with these amounts[14].

33. Examples of these profiles are shown in Figure 2 for a selection of OECD countries. After childhood, per capita expenditures increase with age, especially between 60 and 80 years[15]. For some countries (e.g. Sweden and Poland) expenditure levels for the highest age groups were available (and not grouped for all individuals aged for instance 80 or older as in the case of most countries), showing a decline in spending levels for the oldest individuals.[16] Average levels of expenditures on women are higher than those on men in middle age groups due to child bearing. For elder groups, men tend to display a higher expenditure pattern.

**Figure 2. Age-related expenditure profiles of health care provision (spending per capita as percent of GDP per capita)**




Source: European Commission and Economic Policy Committee (2009).

### 3.5 Social housing: a regression-based actual use approach[17]

34. Estimating the distributive effect of social housing is difficult, as it requires quantifying the aggregate size of the implicit benefits provided. A method to take account of the income value households

14 As only differences in age and gender are considered, this approach underestimates the equalising and poverty-reducing effect of public health care services in countries where these are targeted to low-income households (e.g. Medicaid in the United States). Even in health care systems with broad or universal coverage, some elements are targeted towards low-income groups (e.g. reduced out-of-pocket payments for hospitalisation, doctor visits etc.) and these are not accounted for in this type of imputation.

15 It is common belief that health care costs rise steeply with age, because individuals are nearing their death, making medical treatments more costly. Busse *et al.* (2002) conclude however that the relation between health care costs and age is more complex. When hospital costs are considered, the most costly patients are those who die young.

16 As age is top-coded in EU-SILC at 80, the imputations undertaken in this report use the weighted average for individuals aged 80 and over.

17 The invaluable support of Joachim Frick and Markus Grabka (DIW – Berlin) for estimating imputed rent for social renters is gratefully acknowledged.

derive from living in a publicly-provided house at lower rent, is to estimate the value of *imputed rent*. Due to data availability, the effect of social housing is confined to countries in the EU-SILC database.

35. Three groups of potential beneficiaries of imputed rent can be identified: owner-occupiers, rent-free tenants and tenants with below-market rent (including social housing and rent-reduction by employers or relatives). Most work on imputed rent until now has focused on estimating the benefits owner occupiers derive from their owning the house (e.g. Canberra Group 2001; Frick & Grabka 2003) Analogously, a measure of imputed rent can be derived for tenants who rent in the public sector at a below-market rent. However, very little conceptual and empirical work has been done on that issue so far.

36. Reduced rent tenants can include those (a) renting social housing, (b) renting at a reduced rate from an employer and (c) those in accommodation where the actual rent is fixed by law. No differentiation between these three types is possible on the basis of the data at hand, which may lead to an overestimation. When the term 'social renter' is used in the following, this refers to this category of reduced rent tenants.

37. A general description of the various approaches to calculate imputed rent on the basis of micro data can be found in Frick and Grabka (2003), Frick *et al.* (2006) and Frick *et al.* (2010). In the current paper the opportunity cost approach is used (also known as the 'rental equivalence method'). Using information from those households living in the private (non-subsidized) rental market, a rental value for all property of tenants in the social rental sector is estimated. It is based on a hedonic regression estimation of the logarithm of rent actually paid by main tenants on the private housing market (so excluding social housing and any other reduced rent payments) (covariates of the regression can be found in Table A.1 in Annex 1).

**Table 2: Method used to estimate imputed rent for social renters and frequency of different categories of tenure status (households)**

| | Selection bias? | Regression method | Number of households that rent at | |
|---|---|---|---|---|
| | | | market rent | reduced rent |
| AUT | No | OLS | 2,012 | 471 |
| BEL | Yes | Heckman | 1,382 | 506 |
| CZE | No | OLS | 442 | 1,737 |
| DEU | Yes | Heckman | 5,814 | 768 |
| DNK | No estimation possible | | 1,586 | 0 |
| EST | Yes | Heckman | 172 | 71 |
| ESP | No | OLS | 915 | 404 |
| FIN | No | OLS | 971 | 1,354 |
| FRA | Yes | Heckman | 1,949 | 1,532 |
| GRC | No | OLS | 847 | 42 |
| HUN | Yes | Heckman | 227 | 288 |
| IRL | Yes | Heckman | 344 | 585 |
| ISL | No | OLS | 169 | 174 |
| ITA | Yes | Heckman | 2,708 | 648 |
| LUX | Yes | Heckman | 1,298 | 159 |
| NLD | No estimation possible | | 2,957 | 0 |
| NOR | No | OLS | 627 | 210 |
| POL | No | OLS | 359 | 145 |
| PRT | No | OLS | 391 | 313 |
| SWE | No | OLS | 2,112 | 153 |
| SVN | No | OLS | 343 | 120 |
| SVK | No | OLS | 434 | 24 |
| GBR | Yes | Heckman | 662 | 1,643 |

Source: OECD Secretariat's computations from EU-SILC 2007.

38. Selection bias may occur between private and reduced rent tenants, resulting from e.g. different quality of housing between private and social renters. The selection bias is supposed to run along the criteria for eligibility and other factors like social segregation. The selection variables used are household income, the capacity to face unexpected financial expenses, size of the family, whether or not the family is a lone parent (all of which can be considered as indicators for the eligibility criteria) and whether or not the head of household has a migration background as an indicator for possible segregation. If there is selection bias, then a two-step Heckman procedure is applied to predict the logarithm of rent.

39. Table 2 provides an overview of the number of cases of both private and social renters, as well as which method is used in each country. In ten countries selection bias between private and social renters is significant, and hence a Heckman selection bias correction is applied. In the other countries estimates are derived using an OLS regression. No estimates are possible for Denmark and the Netherlands, as social renters cannot be identified.

40. Next, a randomly chosen error term from the true distribution of market renters is added in order to maintain variation in the resulting estimates of imputed rent for reduced rent tenants. This is done five times, and hence, five different estimates of rent for reduced rent tenants are derived in order to test for the quality of the estimation. A measure of imputed rent is derived by taking the antilog of the estimated monthly fictitious rent, deducting from it actual rent paid. Table A.2 in Annex 1 gives the average monthly

amount of imputed rent for each country, as well as the share of social rent households with negative imputed rent. Negative values may arise because of overlapping distribution of social and private renters, e.g. because the geographical categorisation used in the regression is too rough. The table shows rather high levels of imputed rent for the United Kingdom and Ireland. These high levels may be driven by rent levels in London and Dublin. Finally, annual amounts are arrived at by multiplying the estimates by 12 and negative values of imputed rent are put to zero.

### 3.6 Early childhood education and childcare services (ECEC): actual use approach

41. To account for early childhood education and childcare services is the *actual use approach*, has been applied, following Matsaganis and Verbist (2009). Formal care services for children below compulsory school age can be categorized in three broad groups: 1) Centre-based day care; 2) Family day care; 3) Pre-school education programmes (for more details, see OECD Family Database). As categories of pre-primary education and childcare are overlapping in OECD and national data, and in some countries there is no distinction between the two, pre-primary education is here taken into account together with childcare in order to avoid the double counting of children using these services. It also gives a more comparable image of services provided to children under school-age. While almost the entire age group of 3 to 6 years-olds is often enrolled in pre-primary school, services provided to younger children (under 3 years old) are scarcer and opening hours are limited in many countries.

42. The beneficiaries of publicly funded ECEC services are the children and their parents that are using these services. The value of this type of public service can thus be allocated to the child or to its parents. If the value of the in-kind benefit is added to household income and distributed evenly over household members, then both allocations (to parents or to children) are equivalent. If the value is, however, only allocated to the beneficiary, then the choice between parents and child may affect distributional results.

43. For an appropriate identification of beneficiaries, information on whether the user is benefiting from subsidized care is needed, as well as on the type of childcare that is used (this is relevant in the case where different categories are subsidised in a different way, which is in general the case), and on the intensity of use (number of hours, or full-time or part-time). The differentiation between public and private services is not available in the datasets used here. Consequently, in some cases public money is allocated to people purchasing a private service. This does not introduce much bias in most countries, as private services are rare or almost entirely subsidized by the state. But in some countries like the United Kingdom and France, where many parents pay for private childcare and are partly reimbursed through the tax system, this might lead to double counting of the benefits.

44. Amounts per user of pre-primary education are derived from the OECD Education Database, whereas the amounts for childcare come from various national sources (Vaalavuo 2011, see Annex 2)[18]. An hourly price is derived by dividing this benefit by average hours of use. The imputation of ECEC transfers is based on the real use of these services by an hourly basis in order to allow for differences in the intensity of use. Pre-primary education is free in all countries studied but in kindergartens, crèches and other forms of day care, there are often user fees that are tied to parent's income; these payments are not taken into account in the imputation. As fees are income dependent in almost all OECD countries (see OECD 2007), this means that the results probably underestimate the distributive effect of ECEC subsidies.

[18] For Australia, HILDA provides an imputation of the child care benefit, which corresponds to the value of the in-kind benefit households derive from using subsidised childcare.

### 3.7 Long-term elderly care services: insurance-value approach

45. In comparison to childcare, no similar data on the use of elderly care services exists in the datasets. Therefore, imputation is based on the insurance value approach as in the case of health care. If elderly care is subsidised and access to subsidised facilities is universal, then one can impute the value of elderly care services to the elderly, irrespective of whether they are actually using the service or not. These expenditures per age group can be considered as a kind of insurance premium by which one is insured for the care costs (either in the form of home-help or in an institution) one might incur with increasing age.

46. In-kind benefits for elderly people fall into two broad categories: first, home-help services, e.g. providing assistance to elderly living outside residential care centres for carrying out their daily tasks, and second, day care services (provision of residential care in an institution, costs of operating homes for the elderly, service flats, sheltered homes, etc). This second category can include both nursing homes, which provide nursing and personal care to persons that face restrictions in their activities of daily living, as well as institutions that are not designed specifically for people with extra care needs.

47. Extensive international comparative research on elderly care has been scarce for many reasons: designs of systems and administrative auspices are complex and vary remarkably, division between public and private responsibilities is unclear, and analytical frameworks lack reliability and consistency (Österle 2002).[19] In addition to differences in expenditure levels, a great deal of variation can be found between countries in the use of elderly care services. It is difficult to make perfect comparisons between the figures shown in Table 3 as the age groups are not identical, but bearing this in mind we can see remarkable differences in coverage: in Norway, for instance, 62 per cent of the oldest age group (85+) are using home care services while the same figure is 7 per cent in Estonia (80+). The use of institutional care varies from 4 per cent in Estonia and 8 per cent in Spain to 34 per cent in Denmark and 40 per cent in Iceland (Vaalavuo, 2011).

[19] Moreover, variance can be found in following areas: branch covering the risk of dependence (healthcare, sickness, invalidity, or long-term care), system of coverage (social insurance or social assistance), conditions for which benefits are granted, qualifying period, means testing, age groups covered, minimum level of dependency, user charges for benefits in kind, level of benefits in cash, and needs-testing according to the level of dependency (MISSOC 2009).

**Table 3. Share of Age Group Using Services for Elderly People.**

| | Home based services | | | Institutional care | | |
|---|---|---|---|---|---|---|
| | 65-74 | 75-84 | 85+ | 65-74 | 75-84 | 85+ |
| Denmark | 0.07 | 0.23 | 0.52 | 0.03 | 0.10 | 0.34 |
| Estonia | 0.01 | 0.01 | 0.07 | 0.01 | 0.01 | 0.04 |
| Finland | 0.02 | 0.10 | 0.25 | 0.01 | 0.05 | 0.19 |
| France | .. | .. | .. | 0.01 | 0.06 | 0.24 |
| Germany | 0.03 | 0.10 | 0.31 | 0.01 | 0.05 | 0.24 |
| Hungary | 0.05 | 0.13 | 0.18 | 0.01 | 0.03 | 0.06 |
| Iceland | 0.21 | 0.21 | 0.21 | 0.02 | 0.10 | 0.40 |
| Italy | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| Netherlands | 0.09 | 0.33 | 0.60 | 0.01 | 0.08 | 0.34 |
| Norway | 0.08 | 0.26 | 0.62 | 0.01 | 0.05 | 0.23 |
| Slovenia | 0.09 | 0.09 | 0.09 | 0.01 | 0.04 | 0.14 |
| Spain | 0.06 | 0.06 | 0.15 | 0.02 | 0.02 | 0.08 |
| Sweden | 0.03 | 0.13 | 0.39 | 0.01 | 0.06 | 0.27 |
| United Kingdom | .. | .. | .. | 0.01 | 0.11 | 0.11 |

Notes: a.) The information for France and the UK (England) is aggregated for both home care and institutional care. b.) In Iceland and Slovenia, home care services and in Italy, both home and institutional care are calculated for the total age group of 65+. c.) Age groups: Denmark and Norway 67-74, 75-84, 85+; Hungary 65-69, 70-79, 80+; Estonia and Spain 65-79, 80+; France and Slovenia 65-74, 75-79, 80+; the UK 65-74, 75+. d.)Data is from mid-2000s.

Source: Vaalavuo (2011) (Different national sources, see Annex 2)

48. Information on publicly-funded elderly care expenditures by age groups is available for the five Nordic countries, Estonia, France, Germany, Hungary, Italy, the Netherlands, Slovenia, Spain and the United Kingdom. Using the proportions of users by age group (see Table 3), the amount of public spending on each age group is derived. This amount is further divided by the total number of people in the age group in question reflecting now both the volume of spending and the user profile. This results in a monetary value per person in each age group that we can then allocate to individuals in the dataset. The logic is the same as for the imputation of health care expenditures. The number of age groups varies from one to five according to the data available. The possibility to distinct between home care and residential care was available for Estonia, Finland, Italy, Iceland, Norway, Sweden and the United Kingdom.

49. Institutionalisation or reliance on domestic care does not only depend on severity of illness, but also on matters such as marital status, availability of informal caregivers, incentives to be found in the organisation of public care system and even the walking distance to public transports (Österle 2002). Despite the fact that people living in institutions are excluded from the survey, this in-kind benefit is included in the imputation. Even if no respondent in the data is actually staying in an elderly institution, this service is considered as an insurance against old age, thus the possible, not real, benefit is taken into account here.

## 3.8 Adjusting for differences in needs

### *3.8.1 What equivalence scale should be applied for in-kind benefits?*

50. In distributional studies, it is common practice to correct household income with an equivalence scale to take account of economies of scale: the needs of a household grow with each additional member, but not in a proportional way (OECD 2005a). Following standard practice, the equivalence scale used in this report for adjusting household disposable income is the square root of household size. [20] But when

[20] See OECD (2005a) (http://www.oecd.org/dataoecd/61/52/35411111.pdf) for further explanations and specifications.

non-cash income components are included, this may give rise to what Radner (1997) has called the "consistency" problem: some types of non-cash income may have needs associated with them that are unmeasured in usual equivalence scales. The question is particularly relevant in the case of poverty analysis, as inclusion of non-cash incomes can represent considerable relative changes in income to low-income households. Consider two single-person households with each USD 1000 cash income. Person A is ill and receives public health care worth USD 200, whereas person B is healthy and needs no health care. Consequently, person A could be said to have 20% more needs than B because of differences in health care needs, and his equivalence scale should be 1.2 compared to 1 for B.

51. Even though the problem is recognized in the literature, the standard approach in most empirical studies is to apply the same equivalence scale for both cash and extended income. Garfinkel *et al.* (2006) defend this approach because "on the one hand, in-kind benefits do not exhibit economies of scale, which implies they should be divided by household size rather than the square of the household size. On the other hand, in-kind benefits are not shared equally by all family members, which suggests that they should be added to equivalent cash income on an individual basis. (…) Thus our use of the same equivalence scale for both cash and in-kind expenditures is a reasonable middle-of-the-road solution".

52. Table 4 illustrates these three options for a "typical" poor household consisting of two adults and two children aged 8 and 13.[21] The disposable cash household income is USD 40,000. Applying the standard OECD equivalence scale, which is the square root of household size, this is converted to USD 20,000 of equivalent income attached to each individual (column (1)). The child of 8 years is enrolled in primary school (value estimated as USD 3,000), whereas the 13 year old is in lower secondary education (value USD 5,000). The corresponding amounts for extended income (i.e. cash income plus in-kind benefits) using the three alternative options are presented in columns (2) through (4).

53. The amounts of extended income can differ considerably, depending on the option that is chosen. Moreover, this will also affect how poverty outcomes are assessed. Using a fixed[22] poverty line (50% of the median income before imputation, i.e. USD 21,000), all members of this household are counted as non-poor after imputation of education expenditures, on either a cash income equivalence scale (column 2) or on a per-capita basis (column 3). However, when in-kind benefits are attributed to the individual user only, then the two adults remain poor (column 4). Using a floating poverty line, the assessment differs when in-kind benefits are imputed on a per-capita basis: in that case, all family members remain poor.

[21] The illustrative values shown in Table 4 are derived from the empirical data used in this study.

[22] The difference between a fixed and a floating poverty line is discussed later in chapter 3.9.

**Table 4. Imputation of education services in household income for a typical low-income family with two children, example with three alternatives**

| | Equivalised cash income, before taking account of services (1) | Extended income (cash income + education services) | | |
|---|---|---|---|---|
| | | In-kind benefits equivalised with same equivalence scale as cash income (2) | In-kind benefits expressed on per capita basis (3) | In-kind benefits non-equivalised and only attributed to individual beneficiary (4) |
| Adult 1 | 20,000 | 24,000 | 22,000 | 20,000 |
| Adult 2 | 20,000 | 24,000 | 22,000 | 20,000 |
| Child 8 year | 20,000 | 24,000 | 22,000 | 23,000 |
| Child 13 year | 20,000 | 24,000 | 22,000 | 25,000 |
| | | | | |
| Fixed poverty line: 50% of median cash income | 21,000 | 21,000 | 21,000 | 21,000 |
| *Poverty outcomes* | All family members poor | No family member poor | No family member poor | Adult family members poor, children not poor |
| Floating poverty line: 50% of extended income | 21,000 | 22,900 | 22,100 | 22,000 |
| *Poverty outcomes* | All family members poor | No family member poor | All family members poor | Adult family members poor, children not poor |

54. There are two strands of recent work that each proposes an alternative solution to the problem of appropriate equivalence scales for in-kind benefits (Aaberge *et al.* 2010a and 2010b; Paulus *et al*. 2010). Both approaches rely on actual government spending on public services, though their methodology is considerably different. Below, these approaches are applied empirically in order to test the sensitivity of the results with regard to the standard use of the cash income equivalence scales to other specifications.

### *3.8.2 A theoretically derived equivalence scale based on minimum expenditures of public services*

55. Very recently Aaberge *et al.* (2010a and 2010b) have proposed a new methodology aiming to offer a solution to the issue of differences in needs. In the first paper (2010a) the authors derive a theoretical model, drawing on detailed Norwegian data, whereas the second paper (2010b) extends the application of this approach to EU member countries. [23]

56. The core piece of the methodology of Aaberge et al. (2010a & 2010b) is the construction of a joint equivalence scale for extended income, defined as the weighted average of scales for cash and non-cash income. This joint scale implies that "individuals who are unequal with respect to needs for public services are given unequal weights in the needs adjustment" (Aaberge et al. 2010b).

#### *3.8.2.1 Theoretical model*

57. This innovative methodology proposes to construct a household equivalence scale that takes account of needs that are associated with cash income on the one hand (which corresponds largely to consumption of goods) and the needs that are linked with public services such as e.g. health care and education, on the other. This latter category in general does not exhibit economies of scale, and

[23] This approach has been discussed with the author at a workshop meeting in May 2010. We would like to thank Rolf Aaberge for his availability and him and his team for permission to use this approach in the frame of the present study.

consequently should be derived in a different way as the cash income equivalence scale, which structure is typically characterised by scale economies.

58. The reasoning behind applying a different scale of in-kind services is the assumption that specific population groups have extra needs for specific services and that these groups should not suffer economically because they belong to a household with a high need for specific services. To take the example of health and older people above, this means that health services received by families with older people should not only count as an increase in extended income but should also be counterbalanced by increasing the equivalence scale for these families.

59. The construction of a joint equivalence scale involves several steps. In a first step, an equivalence scale for public services for each individual is established, based on values of group-specific spending (relative to a reference group). In Aaberge *et al.* 2010a detailed data on local government spending in Norway are used to estimate a Linear Expenditure System (LES) that explains differences in spending behaviour of Norwegian municipalities. This model is applied to determine the minimum expenditures per service category per target group[24] that a social planner considers as necessary, taking into account (a) heterogeneity in expenditure needs, and (b) local preferences for allocation of income to different services. These minimum expenditures indicate how much budget the social planner has to spend on each person in a certain target group to ensure that a certain level of social welfare is attained for each member of this target group; they are the basis for deriving for each individual the equivalence scale associated with the public services. This individual equivalence scale is derived as the sum of the public service expenditures allocated to this individual compared to a reference amount. It is assumed that the sector-specific discretionary income is allocated to target groups by the same proportions as minimum expenditures.

60. What Aaberge et al (2010a & 2010b) call the needs-adjusted equivalence scale *NA* for household *h*, is a weighted average of the cash income equivalence scale $CI_h$ – which remains the familiar modified OECD scale – and the sum of the individual non-cash income equivalence scales $NC_j$ (for public service *j*):

(1) $NA_h = \theta_r \, CI_h + (1- \theta_r)\sum_j n_{hj} \, NC_j$

The weight $\theta_r$ is equal to the ratio between the minimum required cash income and the minimum required extended income of the reference group *r*. The number of members of household *h* in target group *j* is given by $n_{hj}$.

61. The choice of the reference person is important as it determines both the non-cash income equivalence scale and the weight of the cash and non-cash income equivalence scale. The reference target group *r* can be anybody, e.g. somebody with either high or low needs. Following the theoretical framework presented in Aaberge et al (2010a) the same reference person has to be used for 1) constructing the in-kind equivalence scale, and 2) calculating the weight $\theta_r$. As the equivalence scale is a relative one, the choice of the reference group should not pose a problem (see Blackorby and Donaldson, 1993 for the issue of relative and absolute equivalence scales).

62. As all values are expressed in terms of a reference household by the social planner (hence, a relative equivalence scale), the choice of this reference group changes also the reference framework. When scale invariant indices (like Gini coefficients and relative poverty rates) are used, the results are independent of the choice of reference group. This means that changing the reference target group from e.g. a single man aged 40 to a couple with two children (who have considerably higher needs for services, see infra), will change the value of the equivalence scale, but not of the Gini coefficients or relative

[24] A target group is defined as a group of people with similar needs for public services.

poverty rates. This is due to the fact that a change of reference group only leads to a scale transformation of the needs adjusted-scale, which follows by straightforward calculation.

*3.8.2.2 Target groups for needs adjustment*

63. Ideally, the definition of the target groups should follow as closely as possible the logic of the services concerned. For some services (e.g. elderly care, or disability care, or administration) the definition of the target group is rather straightforward, whereas for instance in the case of childcare and tertiary education this is more difficult and can be very country specific. In the case of childcare, should all parents with children in a specific age group (e.g. 0-6 year old) be considered as one target group, or should a distinction be made between full-time working parents and others? In the latter case, why should full-time employed parents have higher childcare needs? Perhaps non-working parents have these needs as well, but childcare is not available, or not affordable, and thus they are not free in their choice between one and two earnership. Research for Norway indicated for instance that childcare needs of parents are in general met, thanks to widespread availability of childcare facilities: labour supply went up first, and the demand of childcare followed. But this is probably not the case in all countries.

64. Another service for which the definition of the target group is not evident is tertiary education: should one consider only beneficiaries as a target group, or only use age limits to define *potential* beneficiaries (e.g. all individuals aged 18-24)? The choices made to define target groups in this study are discussed below for the three sectors of in-kind services considered in this study. For social housing it is assumed that this type of costs is covered in the cash income equivalence scale, so there is no need to incorporate this service in the non-cash income equivalence scale.

65. The entire population forms the target groups for *health care*, though the level of spending differs across individuals. Here, the insurance value approach is used to estimate benefits from health care services, using age and gender to differentiate the amounts. As the data allow for a breakdown for each age level, target groups can be defined here very specifically. For instance, a man aged 62 is allocated a different amount compared to a man aged 63, and thus their needs differ and they will belong to different target groups. A similar approach is followed for long-term *elderly care*, though the demarcation of target groups is based on broader age groups.

66. For *education*, target groups are formed by the actual beneficiaries of education services. As the age limits for various education levels differ across countries (e.g. compulsory education has different lower and upper age limits), the target groups are not defined by age, but by the actual education level the person is currently enrolled in. The following education levels are considered: 1) pre-primary education; 2) primary education; 3) lower secondary education; 4) upper secondary education; 5) post-secondary non-tertiary education; 6) tertiary education. These groups are mutually exclusive, as one can only participate in one education level at a time. It should, however, be noted that an age limit of 30 is applied. This means that if somebody of 35 is in education, this person is assumed not to have education needs (even though the benefit of the education service will be part of his or her imputed and thus extended income). Also for early childhood services, actual beneficiaries are identified as target groups.

67. Aaberge et al. (2010b) argue that the observed pattern of public spending on these services across target-groups is "a result of complex processes where decisions made by democratic institutions play a major role. The relative spending across target groups may thus be considered as reflecting the priorities of policy decision makers and/or the expert opinion on relative needs of different target groups."

*3.8.2.3 Constructing an equivalence scale adjusted for needs associated with public services.*

68. In order to specify an equivalence scale that incorporates the needs associated with public services, we start from the target groups described in the previous section. For each target group a monetary value of public services is imputed along the lines described in the previous chapters. A reference group is chosen, namely a single man who is aged 40 and has no children. For the various target groups, individual non-cash income is divided by that of the reference group in order to construct the non-cash income equivalence scale. In the next step the average value of this scale is calculated over countries.[25]

69. Hence, the equivalence scale for non-cash incomes is defined in terms of average service standards, though in the theoretical framework Aaberge et al. (2010a) propose to use minimum service standards. Aaberge et al. (2010b) indicate, however, that results are independent of this choice, because ratios of standards between different target groups do not change if the average service standard is replaced with that of half the median service standard, since the median in kind benefit is equal to the average when all in-kind transfers to a given target group are equal (which is the case). Next, the individual non-cash income equivalence scales $NC_j$ are summed over household members.

70. In the following step, half of average cash income of the reference target group is calculated over countries. Half of the amount is taken in order to be close to the idea of minimum required cash income. This amount is then combined with half of the reference amount of in-kind benefits, which is taken as a measure of minimum required in-kind income, in order to calculate the weight $\theta_r$, which is the ratio between the minimum required cash income and the minimum required extended income of the reference target group *r*. In our calculations, $\theta_r$ is equal to 0.9710, thus a major weight is given to the cash income equivalence scale in constructing the overall scale for extended income. Finally, formula (1) is applied to derive the needs-adjusted equivalence scale for each household.

71. Table 5 lists a selection of household types and the corresponding equivalence scales for cash income (square root of household size), non-cash income (NC scale) and extended income (NA scale). The examples given here are all for households with adults not in education. Results are in line with those reported by Aaberge et al. (2010b). The age profiles of health care and long-term elderly care spending are reflected in the NC-scale that increases with age and that shows higher needs for women compared to men. Also household with children have higher values of the NC-scale, following patterns on education spending.

[25] In this respect, the approach in this study differs from Aaberge et al. 2010b, who use the median; however, as our target groups are very narrowly defined, the median may not return a value for each target group. Hence, the average is taken.

**Table 5. Equivalence scales for cash and non-cash incomes by household type**

| Household type | Age / education level | Cash income scale | NC-scale (non-cash) | NA-scale (extended income) |
|---|---|---|---|---|
| Single man | 20 | 1 | 0.759 | 0.993 |
| | 30 | 1 | 0.787 | 0.994 |
| | 40 | 1 | 1.000 | 1.000 |
| | 50 | 1 | 1.506 | 1.015 |
| | 60 | 1 | 2.491 | 1.043 |
| | 70 | 1 | 4.136 | 1.091 |
| | 80 | 1 | 7.354 | 1.184 |
| Single woman | 20 | 1 | 0.899 | 0.997 |
| | 30 | 1 | 1.264 | 1.008 |
| | 40 | 1 | 1.246 | 1.007 |
| | 50 | 1 | 1.592 | 1.017 |
| | 60 | 1 | 2.256 | 1.036 |
| | 70 | 1 | 3.565 | 1.074 |
| | 80 | 1 | 6.454 | 1.158 |
| Couple, no children | 20 | 1.4 | 1.658 | 1.421 |
| | 30 | 1.4 | 2.051 | 1.433 |
| | 40 | 1.4 | 2.246 | 1.438 |
| | 50 | 1.4 | 3.097 | 1.463 |
| | 60 | 1.4 | 4.746 | 1.511 |
| | 70 | 1.4 | 7.701 | 1.597 |
| | 80 | 1.4 | 13.808 | 1.774 |
| Couple, both aged 40, 1 child in education | primary (7 y.) | 1.7 | 11.917 | 2.027 |
| | lower secondary (13 y.) | 1.7 | 13.229 | 2.065 |
| | upper secondary (16 y.) | 1.7 | 13.760 | 2.081 |
| | higher (20y.) | 1.7 | 17.342 | 2.185 |
| Couple, both aged 40, 2 children in education | primary (7 y.) | 2.0 | 18.352 | 2.474 |
| | lower secondary (13 y.) | 2.0 | 21.587 | 2.568 |
| | upper secondary (16 y.) | 2.0 | 24.211 | 2.644 |
| | higher (20y.) | 2.0 | 25.274 | 2.675 |
| Lone mother, aged 40, 1 child in education | primary (7 y.) | 1.4 | 9.299 | 1.643 |
| | lower secondary (13 y.) | 1.4 | 10.917 | 1.690 |
| | upper secondary (16 y.) | 1.4 | 12.229 | 1.728 |
| | higher (20y.) | 1.4 | 12.760 | 1.743 |

Source: OECD Secretariat's computations from EU-SILC 2007.

### *3.8.3 A sensitivity analysis on the equivalence scale for differences in spending on public services across countries*[26]

72. The approach presented in Paulus et al. (2010) also uses actual expenditures on public services as an indicator for the needs, but in a different way. Its basic point of departure is that the equivalence scale used to measure inequality of disposable income is conditional on the existence of free public services such as education and health care. If the value of these public services is included in the income concept, then the equivalence scale should also be adapted. They propose a *fixed cost approach*, "assuming that the

[26] This approach was discussed with Panos Tsakloglou in February 2010. His comments and suggestions are gratefully acknowledged.

needs of the recipients of these services are equal to a specific sum of money. For example, we could assume that the per capita amounts spent by the state for age-specific population groups on public education and public health care depict accurately the corresponding needs of these groups. Then the recalculation of equivalence scale is straightforward."

73. Following this line of argumentation, the following should be valid for a household to remain at the same welfare level before and after including public services in the income concept:

(2) $y/e = (y + k) / e'$

with $y$ being cash disposable income, $e$ the modified OECD equivalence scale, $k$ the value of public services and $e'$ the new equivalence scale which incorporates the extra needs of the household members for public services.

74. This formula can be rewritten as

(3) $e' = (y + k)\, e / y$

meaning that for all households (with $y$ different from zero) the new equivalence scale can be derived. Note that this scale is income-dependent, as its value decreases with income level, implying smaller economies of scale for poorer households and larger ones for richer households.

75. The value of $k$ differs across countries, and can reflect differences social priorities. In this sense this approach is similar to the one proposed by Aaberge et al. (2010a), namely that actual expenditures on public services form the basis for the derivation of the corresponding needs. But as is apparent from a comparison of formulae (1) and (3) the form of the proposed equivalence scale differs between the two approaches.

76. Paulus et al. (2010) propose to exploit differences in expenditures between countries to test the sensitivity of distributive results for alternative specifications of $k$. In each country the value of $k$ used in formula (3) is adjusted in such a way that it corresponds to the unweighted average for the different services considered. In this study, this would imply that public spending for education (with breakdowns for the different levels), for health care (for different age groups), ECEC (for different types) and long-term elderly care are adjusted to the EU average spending.

77. Thus for each household with $n$ members ($i$=1,...,$n$) with different characteristics (corresponding to the definition of target groups in the approach by Aaberge et al. (2010)), the value of $k$ is calculated as:

(4) $k = \sum_{i=1}^{n}(k_{ENi} * \frac{S_{EEUi}}{S_{ENi}} + k_{HNi} * \frac{S_{HEUi}}{S_{HNi}} + k_{ECNi} * \frac{S_{CEUi}}{S_{CNi}} + k_{LNi} * \frac{S_{LEUi}}{S_{LNi}})$

With $k_{ENi}$, $k_{HNi}$,$k_{ECN}$, $k_{LNi}$.being the country's spending for respectively public education, health care, ECEC and long-term elderly care for persons with characteristics $i$; $S_{ENi}$, $S_{HNi}$, $S_{CNi}$, $S_{LNi}$ being the country's spending figures for the four types of services expressed as a share of national GDP per capita and $S_{LEUi}$ $S_{EEUi}$ $S_{HEUi}$ $S_{CEUi}$ being the corresponding EU averages. The new equivalence scale $e'$ of formula (3) is then recalculated for all households using the new value of $k$, which reflects EU averages of spending.

78. Application of this methodology is in fact a sensitivity test for differences in national spending across countries, and thus gives an indication of cross-country differences with respect to the underlying needs associated with public services. It assumes that the needs of the recipients are reflected in per capita spending amounts for specific target groups. In this way it is similar to the approach proposed by Aaberge

et al. (2010). These two approaches are applied in section 4.3 in order to test the sensitivity of the results for applying alternative equivalence scales.

### 3.9 Indicators to assess the pro-poorness of publicly provided services

79. Almost all studies that investigate the distribution of publicly-provided services confine their results to inequality indicators. Very few studies investigate the impact on poverty. The most notable exception is Smeeding *et al.* (1993), which reports considerable reductions in poverty rates after inclusion of public health care and education services. Furthermore, the imputation also slightly alters the ranking of the seven countries in this study in terms of the poverty headcount. According to this study which uses data for the early 1980s, poverty is reduced by between one quarter and one third in the Continental European countries and the United States, but by half to two thirds in Australia, Canada and the United Kingdom (Table 6). Smeeding *et al.* opted to use a *fixed* poverty line (50% of median cash disposable income, kept fixed before and after imputation of in-kind services) and in-kind benefits have been equivalised on a per capita basis.

**Table 6: Poverty reduction after imputing education and health care services, seven OECD countries, results from earlier studies**

| | Poverty rate for adjusted disposable cash income | Poverty rate for income extended with education and health care services | Poverty reduction |
|---|---|---|---|
| Australia | 15.1 | 7.4 | 51% |
| Canada | 15.1 | 7.2 | 52% |
| Germany | 7.5 | 5.4 | 28% |
| Netherlands | 6.6 | 4.7 | 29% |
| Sweden | 5.6 | 4.3 | 23% |
| United Kingdom | 13.5 | 4.3 | 68% |
| United States | 18.5 | 12.1 | 35% |

Note: Data refer to the early 1980s.

Source: Smeeding et al. (1993), Table 7.

#### *3.9.1 Should a "fixed" or a "floating" poverty line be used?*

80. A common practice in international comparative research is to use a relative poverty measure, referring for instance to the share of people with income below 50% or 60% of the median equivalent income. However, should the same poverty line be used for disposable cash and extended income (i.e. a "fixed" poverty line), or should it be re-calculated separately for each income concept (i.e. a "floating" poverty line)? There are good arguments for both solutions. Applying a fixed threshold (such as in Smeeding *et al.* 1993 above) captures the effect of the size and incidence of in-kind benefits, but disregards the re-ranking of individuals and the change in relative income differentials that may occur when moving from the cash disposable income distribution to that of extended income. With a floating poverty threshold, the poverty line is recalculated in order to comprise both cash and in-kind elements. The use of a floating poverty line means that the values of the poverty thresholds are increased in the order of 18 to 47% (Table A.3 in Annex 1) when all in-kind benefits are included in the income concept. This approach is applied in Sutherland and Tsakloglou (2009) and the poverty effect then also incorporates the shifts in relative positions that arise from including in-kind benefits; it looks at poverty levels that follow from the new distribution of resources. The difference that the choice of the poverty line can make was already illustrated in a hypothetical example (cf. *supra*).

### *3.9.2 The role of compositional factors for interpreting results of services' impacts on poverty patterns*

81. In addition to the above conceptual considerations, the interpretation of results based on comparing poverty indicators before and after in-kind services is not trivial. Adding in-kind services changes the income distribution and the composition of the population at the bottom end, notwithstanding which equivalence scale is applied and which poverty threshold is used. Poverty outcomes will be determined to a large extent by the interaction between the characteristics of in-kind beneficiaries and those of the initially poor population. If, for instance, beneficiaries of compulsory education expenditures are predominantly non-poor and clustered around the middle of the distribution before taking account of these expenditures (as is the case in the Nordic countries), including education services will further accentuate the differential with low-income families without children. The effect on poverty reduction will be lower than in countries where children are more concentrated at the bottom of the distribution and it could even lead to the counter-intuitive result of *increasing* overall (relative) poverty. Likewise, in countries with high old-age poverty, adding health services will have a higher poverty reduction impact. These compositional factors may help explain why earlier studies find a much lower poverty reduction effect of services in countries like Sweden and Germany (see Table 6 above). It is therefore important to identify the distributional features and the composition of the poor population prior to the imputation of in-kind services.

### *3.9.3 Poverty reduction potential of in-kind benefits*

82. Traditional indicators such as those comparing poverty headcounts before and after accounting for services remain of somewhat limited use for policy considerations as they need to be interpreted alongside information on the composition of the poor population in a given country, and because they require a priori judgements about poverty thresholds. Hence, an alternative way of capturing the possible poverty impact of public services is proposed.

83. This alternative way looks at the "pro-poor" characteristics of services with a particular focus on their *poverty reduction potential*, rather than on their arithmetic effects on poverty rates. Such an approach also takes into account that poverty reduction per se is not the prime aim of education and health care services. The question here is: what could be the overall impact of in-kind services on poverty given the current level and distribution of these benefits and given the current composition of the poor population? For instance, a given increase in expenditures on compulsory education will have a greater impact on overall poverty reduction in countries where child poverty is much higher than overall poverty and where the population share of pupils is high.

84. To that aim, an indicator is constructed which first calculates the aggregated income shortfall of the entire poor population, i.e. the total income value that would have to be spent to pull everyone out of poverty – the usual poverty-gap measure. In a second step, the income values of all specific in-kind services which accrue to the poor population are aggregated. This second aggregate then is divided by the first one to obtain an indication of the poverty reduction potential of in-kind benefits: to which extent might in-kind services reduce the current poverty gap? It can be compared to a similar measure for cash transfers.

# 4. THE IMPACT OF IN-KIND BENEFITS ON INCOME DISTRIBUTION AND POVERTY

85. This chapter presents the empirical analyses of the distribution effects of public services. In a first step the effect of total public services is considered for the entire population. These overall results are tested on the sensitivity for other specifications of the equivalence scales, using two innovative approaches for incorporating the needs associated with public services (see section 3.8). Next, the effect of five major services separately is investigated. These five services are education, health care, social housing, early childhood education and childcare, and long-term elderly care.

86. The presentation below follows three stages. For the total and for each category of services separately, first their importance is indicated by their share of disposable income. Second, an overall indication of potential distributional consequences is then shown by looking at the quintile distribution of the respective benefit over respective beneficiaries. Finally, the distributive impact is considered with the help of inequality summary indicators, such as the Gini coefficient and the poverty reduction potential indicator (PRPI).[27]

## 4.1 The distributive impact of publicly provided in-kind benefits taken together

87. A first question refers to the overall level of publicly provided services in comparison to cash transfers. Figure 3 presents the value of in-kind benefits as a share of disposable household income for 27 OECD countries. Taking into account the value of the five types of in-kind benefits considered in this study would increase household disposable cash income by as much as 29% on average in the OECD. [28] For comparison, the share of cash transfers (including old-age and survivor's benefits) amounts to 23% of disposable income. There are only a few countries (Austria, Germany, Poland) where the value of cash transfers compared to disposable income is higher than that of services (in line with the results on the public spending shares in GDP depicted in Figure 1 above).

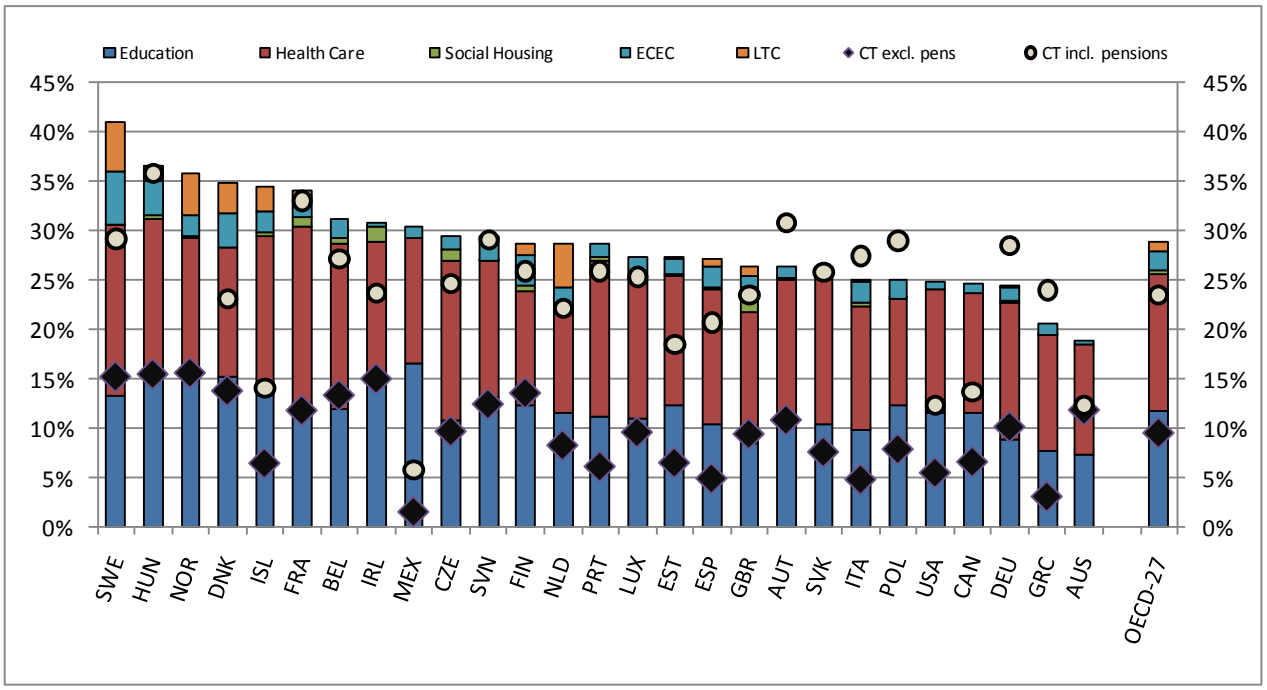
88. The income-increasing effect of services is highest in the Scandinavian countries and Hungary (35% or more) and lower in Australia and Greece (around 20%). Health care and education (excluding pre-primary education) are by far the most important components. In most countries, the imputed value of health care is higher than that of education; exceptions are Canada, Denmark, Ireland, Mexico, Norway and Poland, where education forms the largest category. The services for early childhood education and childcare increase household income on average by 2% but by more than 3% in Denmark, Finland, Hungary and Sweden. Long-term elderly care services raise incomes by 1% and are highest in the four Nordic countries and the Netherlands. In three countries, social housing increases household income by more than 1%, namely in the Czech Republic (1.2%), in Ireland (1.6%) and in the United Kingdom (2.5%) compared to an average of 0.4%.

---

27 In the following empirical analyses, the terms "poverty rate" and "'poverty gap" are used as short-cuts for at-risk-of poverty rate and at-risk-of poverty gap.

28 This is equivalent to an increase in households income from USD 21 500 to USD 27 600, for the average of countries considered here..

**Figure 3. In-kind benefit from public services as a share of disposable income, 2007**

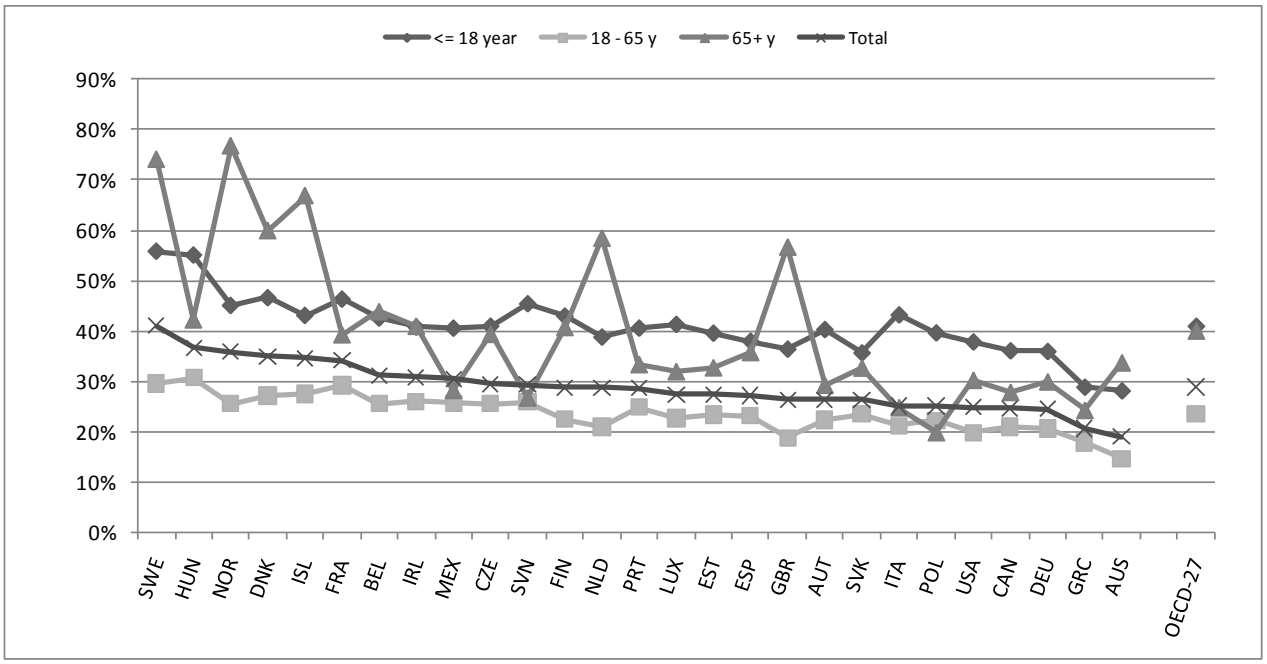



*Notes*: 1) ECEC=Early Childhood Education and Childcare; LTC=elderly long-term care; CT=cash transfers. 2) The income concept used is that of disposable household income in cash, adjusted for household size with the modified OECD scale. 3) Countries are ranked in decreasing order by share of total in-kind expenditures in disposable income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

89. As the benefits of the two major categories of public services, education and health care, are to a large extent determined by age, one may expect different patterns for different age groups. Three broad categories are considered, namely children (aged younger than 18), adults of working age (18 – 65 year old) and elderly (older than 65). Children (and their families) are the main beneficiaries of education services while older people (and their families) are main beneficiaries of health services. In the vast majority of countries, children are the ones with the largest share of in-kind benefits in disposable income, with on average 40%, followed by 39% for the elderly and 23% for working age individuals (Figure 4). There are only some exceptions to this pattern, and in all these countries older people would have the largest increase in income when in-kind benefits are imputed: especially in Denmark, Iceland, the Netherlands, Norway, Sweden and the United Kingdom, the elderly would increase their cash income by half or more. For working age adults, the increase in income would be between 10% and 30%, which is in all countries the lowest of the three age categories, with the exception of Poland, where the elderly have the lowest share.

**Figure 4. In-kind benefit from public services as a share of disposable income for different age categories**




*Note*: Countries are ranked in decreasing order of the share of in-kind benefits in disposable income for the overall population.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

90. If benefits are of equal size for all they will, *ceteris paribus*, translate into larger proportional increases in the incomes of poorer households. A first step is therefore to analyse the increase in household income resulting from imputation of services by income groups. Income quintiles are built on the basis of equivalent disposable household income, *before* accounting for in-kind services, with Q1 representing the poorer 20% and Q5 the richest 20%.

91. All types of public services considered here account for a much higher share of disposable income among lower-income than among higher-income households: 76% of disposable income for the poorest 20% and only 14% for the top 20% (Table 7). In relative terms, services from social housing and elderly care have more significance in the incomes of low-income than those of high-income households. This differential is weaker in the case of the other services considered.

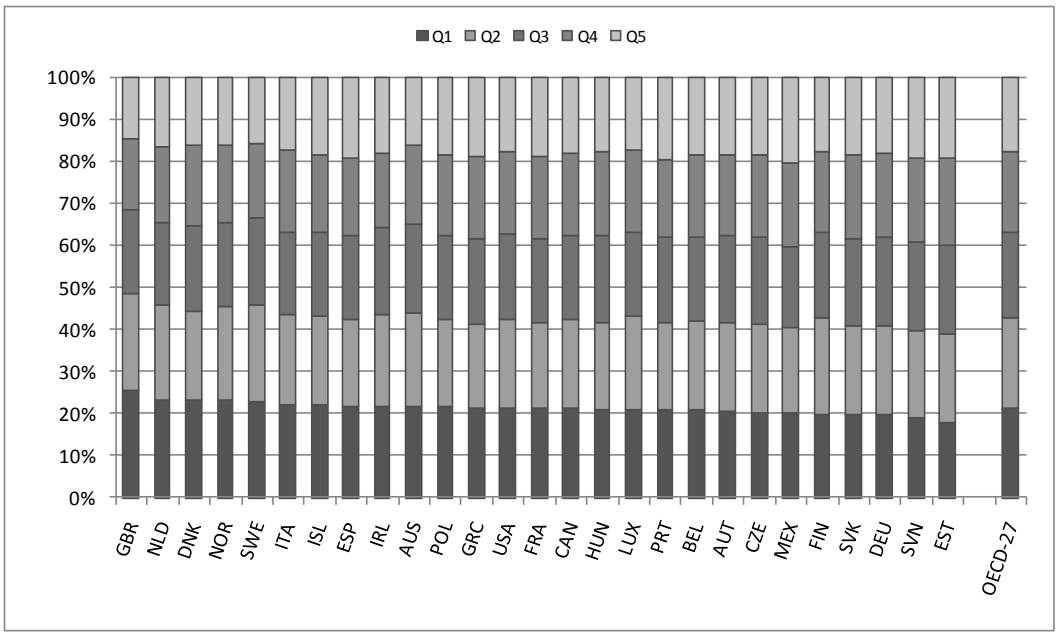
**Table 7: In-kind benefits as a share of disposable income per quintile, average over 27 OECD-countries**

| | Q1 | Q2 | Q3 | Q4 | Q5 | Total |
|---|---|---|---|---|---|---|
| Education | 30.6% | 18.5% | 14.2% | 10.4% | 5.6% | 11.8% |
| Health care | 34.9% | 22.2% | 15.8% | 11.8% | 7.2% | 13.9% |
| Social housing | 1.8% | 0.7% | 0.4% | 0.2% | 0.1% | 0.4% |
| ECEC | 4.5% | 3.0% | 2.4% | 1.5% | 0.8% | 1.8% |
| Elderly care | 4.0% | 1.9% | 0.7% | 0.4% | 0.2% | 0.9% |
| Total | 75.8% | 46.4% | 33.5% | 24.3% | 13.7% | 28.8% |

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

92. Overall, in-kind benefits are rather evenly distributed over different income groups, with only a very slight orientation towards lower incomes (Figure 5). This pattern is strikingly similar across countries. Only in the Nordic countries, the Netherlands and the United Kingdom, in-kind benefits are somewhat more targeted to the lower income groups.

**Figure 5. Distribution of value of total public services over quintiles, 2007.**



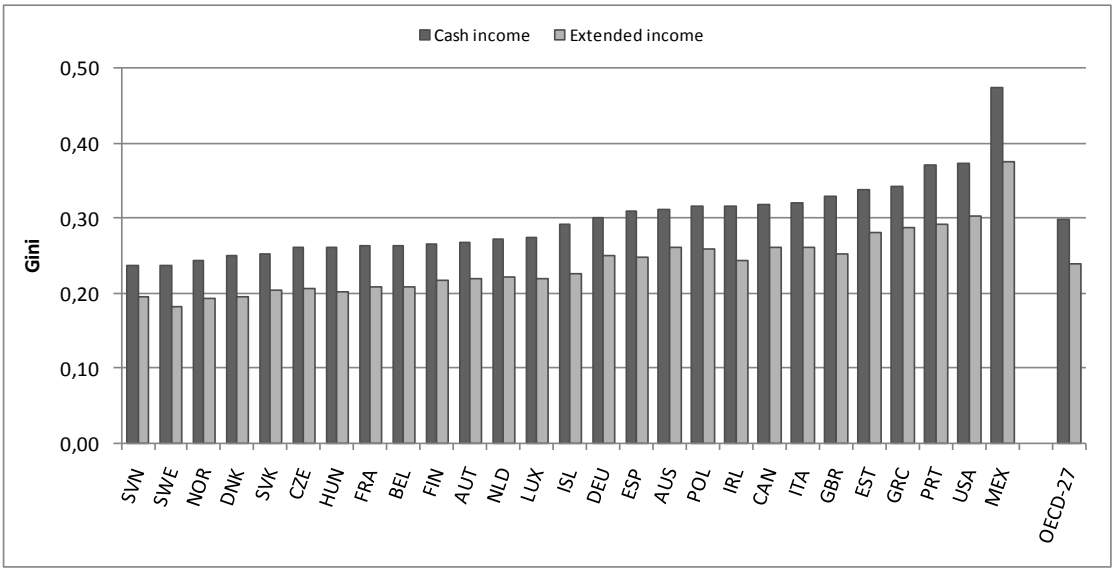

*Note*: Countries are ranked in decreasing order by share of total services spent in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

93. Given the large shares of in-kind services in disposable income, especially for poorer groups, it is interesting to see how the income distribution changes once services are taken into account. Before considering services, income inequality as measured by the Gini coefficient is high (around 0.37) in Portugal and the United States and highest in Mexico (0.47), and comparatively low (0.25 and below) in Slovenia, Sweden, Norway and Denmark (see Figure 6). But when services are included the Gini coefficient falls by roughly around one fifth, on average, from 0.30 to 0.24. Reduction rates range from

16% to 24% and are thus more uniform across countries than inequality reduction achieved through cash transfers and taxes (see OECD 2008a, OECD 2011c).

**Figure 6. Gini coefficient before and after inclusion of all types of public services.**




*Note*: Countries are ranked in increasing order of Gini of cash income. The Gini coefficient ranges from zero (when everybody has identical incomes) to 1 (when all income goes to only one person).
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

94. Table A.5 in Annex 1 presents estimates of the effects of public services for additional inequality indicators, the interquintile share ratio S80/S20 (i.e. the sum of income going to the top 20% divided by the share going to the bottom 20%) and the P90/P10 decile ratio (i.e. the ratio of the income of the person at the 9$^{th}$ decile to the person at the 1$^{st}$ decile). Cash income inequality follows a similar pattern for the three indicators in terms of country ranking. The effect of including public services in the income concept is even more pronounced with the last two measures compared to the Gini: the p90/p10 ratio declines from 3.94 to 2.85 (or -26%), and the S80/S20 ratio drops even with almost 30% (from 4.95 to 3.43) after including public services. These two tail-sensitive measures report higher inequality reductions due to the fact that the in-kind benefits represent a high relative income share for the lower incomes (as was shown in Table 7).

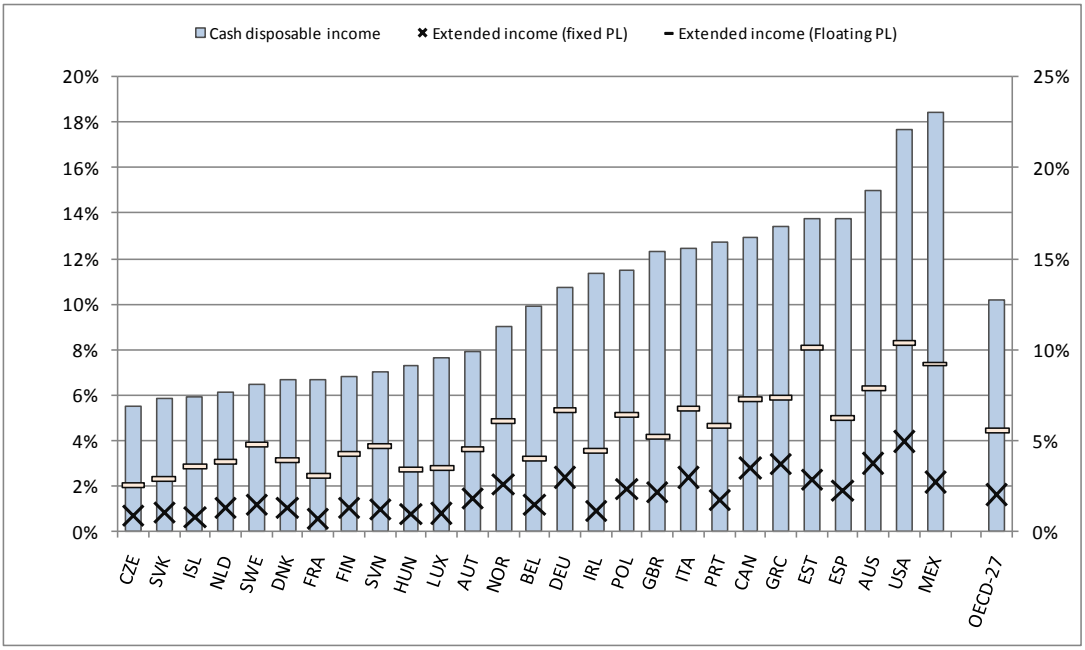
95. There is no systematic relation between initial levels of cash income inequality and the degree of inequality reduction through in-kind benefits, although some high-inequality countries strongly reduce inequality through in-kind benefits. The United Kingdom and, according to most inequality measures, the United States, Mexico and Portugal achieve higher reduction rates while the low-inequality country Slovenia records lower ones. The variation in inequality levels across OECD countries (as measured by the coefficient of variation) is not reduced when taking account of publicly-provided services – but only when estimates are based on the Gini coefficient. Using alternative more tail-sensitive inequality measures, however, reduces cross-country dispersion. These results are in line with Garfinkel *et al.* (2006) who find for 10 OECD countries in the late 1990s, that cross-country differences in inequality at the bottom of the income distribution are reduced following inclusion of in-kind benefits.

### 4.2 The impact of publicly provided in-kind benefits on poverty

96. How do public services affect relative poverty? Figure 7 compares poverty rates for cash disposable income with poverty rates for extended income (i.e. including the monetary value of public services), using both a "floating" and a "fixed" poverty threshold. With a floating poverty line, the poverty line is set at 50% of median equivalent cash income and at 50% of median equivalent extended income, respectively. The results are illustrative and should not be interpreted as "actual" poverty reduction, as discussed in the methodological part of this paper. Before accounting for services, overall poverty rates are high in Mexico and the United States, and low in most Nordic countries, the Netherlands and the Czech and Slovak Republics. When measuring poverty reduction on the basis of floating poverty lines, poverty is almost halved following the inclusion of all public services in the income concept: the overall poverty rate decreases from 10% to 5%. In Belgium, Ireland and the United Kingdom, poverty is reduced with close to 60%, whereas the reduction is much smaller in Estonia and Sweden (around 25%). There is more of a correlation between initial poverty levels and reduction rates which means that cross-country variation in poverty based on extended income actually gets higher: at-risk-of poverty levels for disposable income vary between 6% and 18% but levels for extended income vary between 3% and 10%.

97. The arithmetic reduction in poverty rates is even higher when a fixed poverty line is used, i.e. 50% of median equivalent cash income is applied to both cash and extended income. On average the head count falls from 10% to as low as 2% (corresponding to a reduction of around 80%). Poverty reduction is highest (above 85%) in Belgium, the Czech Republic, France, Hungary, Ireland, Iceland, Luxembourg, Portugal and Mexico, and lowest in Germany, Greece, Norway and the United States (less than 75%).

**Figure 7. Poverty rates before and after including total of public services, fixed and floating poverty line, 2007.**




*Note*: Countries are ranked in increasing order of disposable income poverty.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

98. Poverty reduction is not the prime aim of education, health and other in-kind services. The question rather is what *could* be the overall impact of in-kind services on poverty given the current level

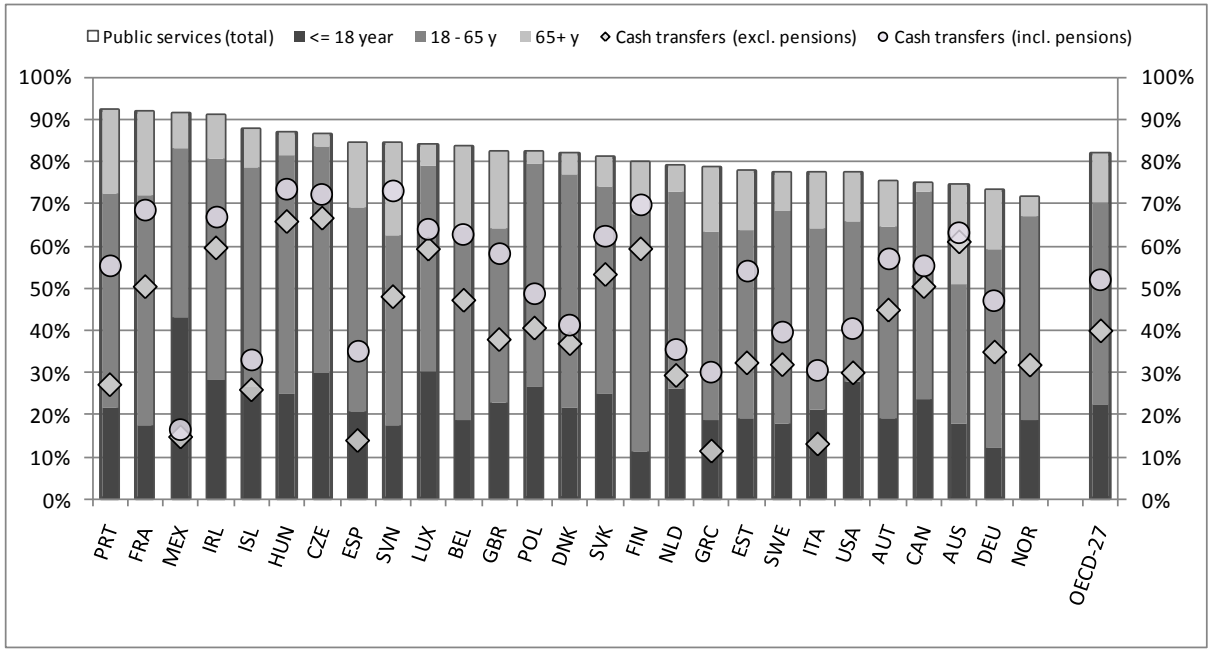
and distribution of these benefits and given the current composition of the poor population. For instance, a given increase in expenditures on compulsory education will have a greater impact on overall poverty reduction in countries where poverty among families with young children is much higher than overall poverty and where the population share of pupils is high.

99. To that aim, a poverty reduction potential indicator (PRPI) is constructed (see chapter 3.9). It measures the amount of the expenditures spent below the poverty line. As can be expected the poverty reduction potential of the total of in-kind benefits is very high (on average 80%). With around 90% levels are particularly high in France, Ireland, Mexico and Portugal. Australia, Germany and Norway report the smallest reduction potential. When compared to cash transfers (excluding old-age and survivor's benefits) the potential of in-kind benefits is much larger in all countries. The gap between cash transfers and in-kind benefits is especially large in the Southern European countries and Mexico. Including old-age and survivor's pensions in the cash transfers brings the potential of cash transfers to a higher level (plus 15 percentage points), reaching a level that is in some countries quite close to the value of public services (e.g. in Hungary and Slovenia).

100. The poverty reduction potential is, however, not the same across the different age groups. Not surpisingly, given their population weight, the reduction potential is highest among the people aged between 18 and 64 years. Overall, the working age category receives the largest share of expenditures below the poverty line: on average 48% of the poverty gap is reduced by spending of which this category is beneficiary, on a total of 82%. However, compared to their share in the population (see Table A.4 in Annex 1) they are underrepresented in the poverty reduction potential gap. The working age population accounts on average for 65% of the population, whereas they account for only half of the total PRPI.

101. The PRPI for the elderly is on average 11%, with much lower shares in Hungary, the Czech Republic, Luxembourg and Poland, and the highest one in Slovenia. For children it is on average 23%, with the highest share in Mexico, and lower ones in Germany and Finland. The contribution of the youngest age group to the reduction of the poverty gap is clearly more than their share in the population (which is on average 21% for the OECD, see Table A.4 in Annex 1).

**Figure 8. Income advantage from public services and cash transfers going below the poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income**




*Note*: Countries are ranked in decreasing order by share of in-kind benefits spent below the poverty line in poverty gap.

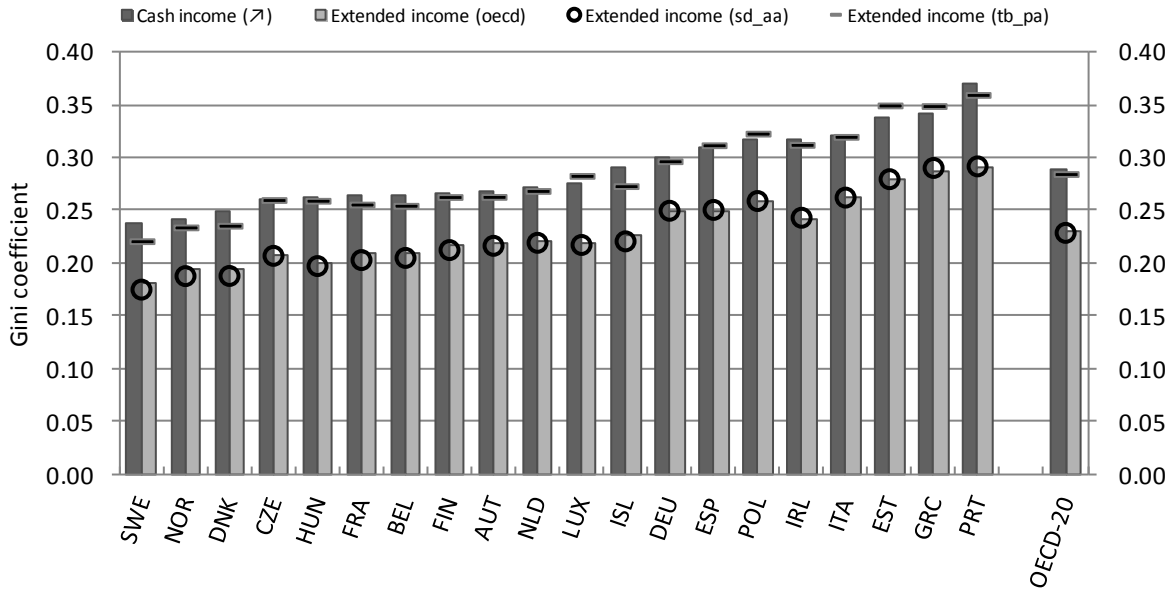
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

### 4.3 The sensitivity of results for alternative specifications of the equivalence scale

102. In section 3.8, two innovative approaches have been discussed for taking account of the needs associated with public services, namely a theoretically based needs-adjusted equivalence scale (proposed by Aaberge et al., 2010, and which is presented here by the abbreviation "sd_aa") and the approach proposed by Paulus et al. (2010) which tests the sensitivity for differences in spending levels (further abbreviated as "tb_pa"). For a selection of countries, the inequality and poverty outcomes when using these two alternative approaches are compared here with the outcomes in the previous section that make use of the cash income equivalence scale for both cash incomes and extended incomes.

103. Figure 9 shows the Gini coefficients for cash and extended income, with three equivalence scales for this last income concept. On average, when using the theoretically based approach presented by Aaberge et al. (2010), inequality decreases in a way that is very similar to the considerable drop that occurs when using the standard equivalence scale for extended income. This is the case for all countries. The approach proposed by Paulus et al. (2010), on the contrary, yields inequality outcomes that hardly change on average when moving from cash to extended income. For Estonia and Southern European countries, inequality levels even increase somewhat (due to their lower spending levels), whereas in the Nordic countries inequality tends to decrease, which follows from their relatively high spending levels. The other two inequality indices provide the same picture and are hence not presented.

**Figure 9. Gini coefficient before and after inclusion of all types of public services, comparing three equivalence scales for extended income**




Note: Countries are ranked in increasing order of Gini of cash income. oecd=modified OECD scale; sd_pa=sensitivity test for different spending levels; tb_aa=theoretically-based equivalence scale.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

### 4.5 The distributive impact of education services

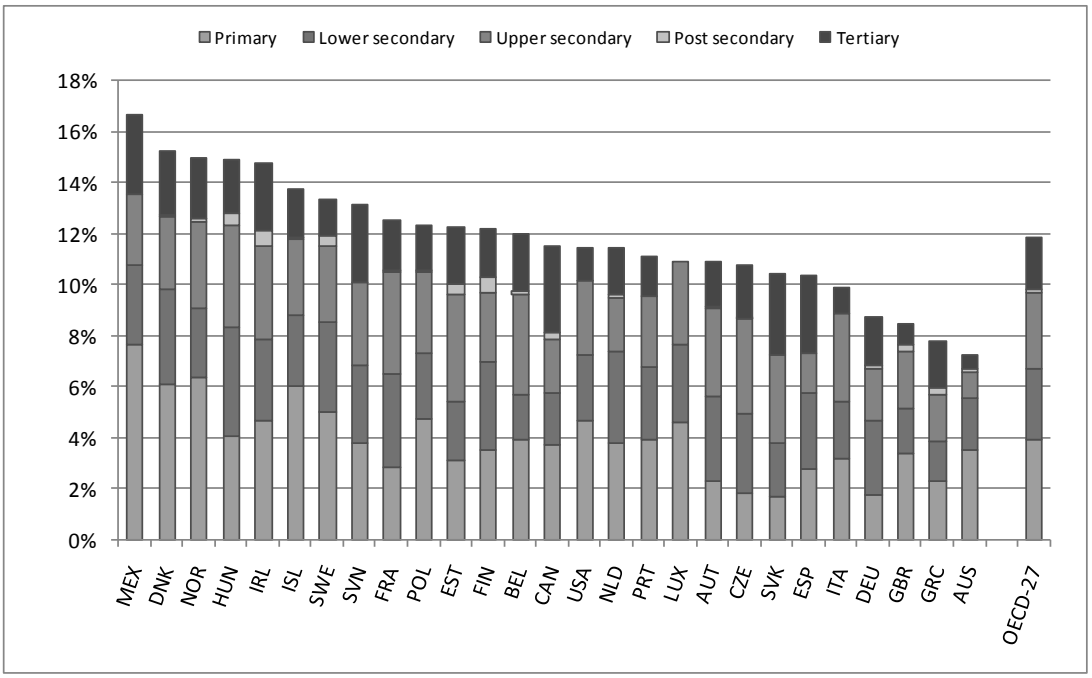
104. Imputing the value of public education services based on actual use of these services increases household income by some 12% on average (Figure 10).[29] This increase is larger for Mexico, Denmark, Norway and Canada – 15% or more, whereas in Australia, Germany, Greece, Italy and the United Kingdom it is below 10%.

105. Primary and lower secondary education correspond in most countries to compulsory education; together they make up on average half of education expenditures in all countries. In some countries they are clearly more important (especially in Australia, Luxembourg, Mexico and the United States and the Nordic countries), whereas in other countries, their share is relatively small (e.g. Slovakia and Canada). Upper secondary education has a share that is similar to that of lower secondary education in most countries. Tertiary education is a smaller expenditure category, accounting for 2% of disposable income[30].

29 The ranking of countries in terms of spending on education is not necessarily the same as the one in OECD 2008b, as the denominator is different (disposable income here versus GDP in OECD 2008b).

30 The shares of post-secondary non-tertiary education are presented here for illustrative purposes; it represents a relatively small proportion of expenditures in most countries and will not be considered separately in the further analyses.

**Figure 10. In-kind benefit from education services as a share of disposable income**



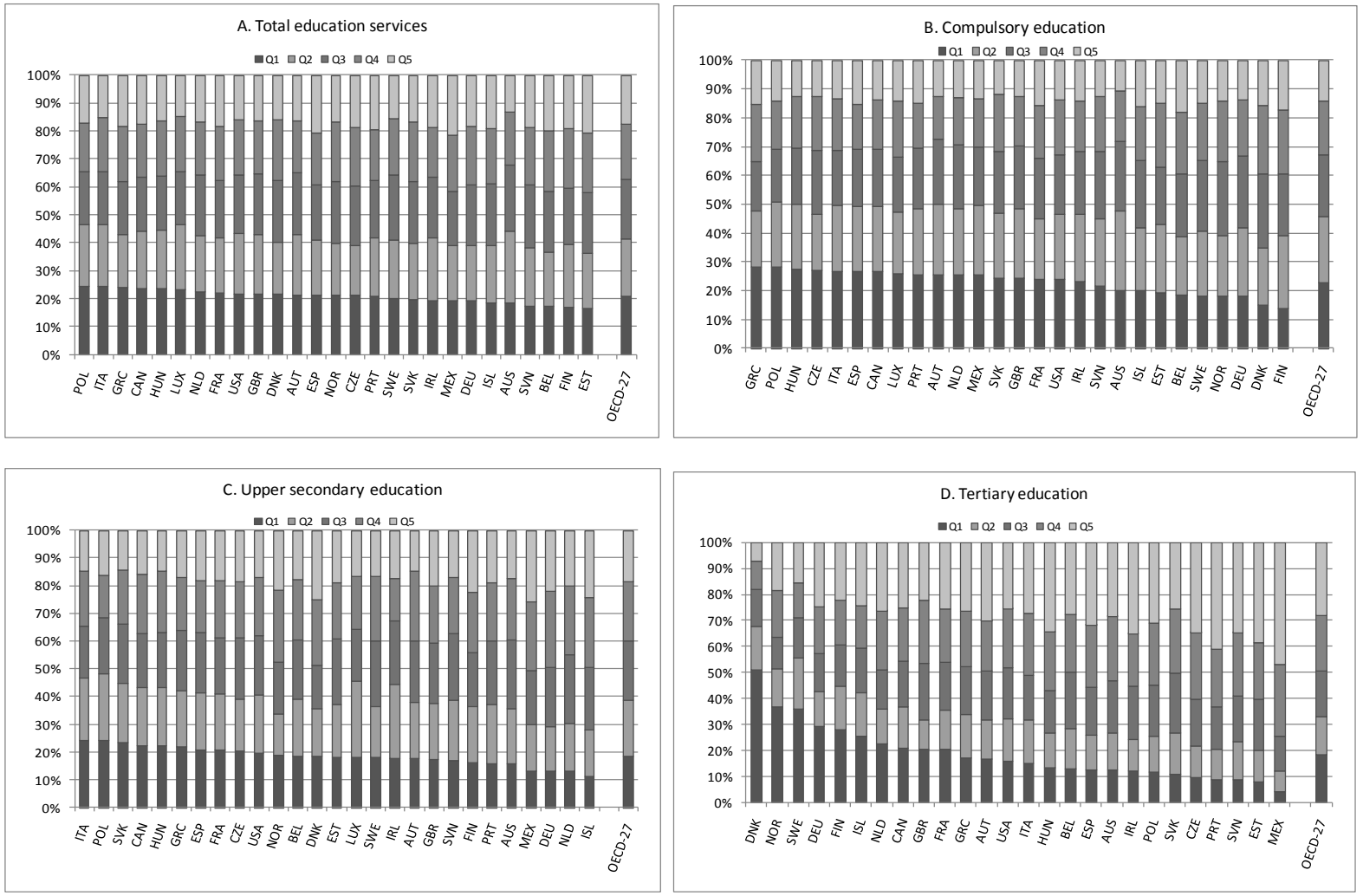

*Notes*: 1) DK, IS include expenditures on R&D in tertiary education. 2) Countries are ranked in decreasing order by share of total education expenditures in disposable income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

106. Total education expenditures tend to be allocated slightly more to lower incomes than to the top groups (see Figure 11, Panel A): the first quintile receives on average 21% of all education expenditures, compared to 18% in the fifth quintile. Slovenia, Belgium, Finland, and Estonia are somewhat less oriented towards the bottom quintile (with shares of 17%), whereas in countries like Poland, Italy, Greece, Canada and Hungary a higher share of total education expenditures is going to the bottom quintile (24-25%). The redistributive impact is, however, likely to be different for different levels of education. Compulsory education can be expected to be more redistributive than higher education, since the former is supposed to benefit equally all school-age children, while tertiary education service has been shown to often be regressive (e.g. OECD 2008a).

107. Compulsory education is slightly more oriented towards low income groups: on average, the bottom quintile receives 23% of expenditures of this education category, compared to only 14% for the top quintile (Figure 11, Panel B). This pattern is strongest in Greece and Poland (with a Q1 share of 28%), and then decreases gradually over the countries towards 20%. In the Nordic countries and in Germany the distribution of compulsory education is more middle-class biased, with significantly less than 20% of expenditures going to both the bottom and the top quintile. The general progressive pattern elsewhere is driven by the fact that children in compulsory education tend to be situated more in the lower parts of the income distribution (see Figure A.1 in the Annex 1).

**Figure 11. Distribution of education services over quintiles**




*Notes*: Countries are ranked in decreasing order by share of education expenditures in the bottom quintile (Q1).

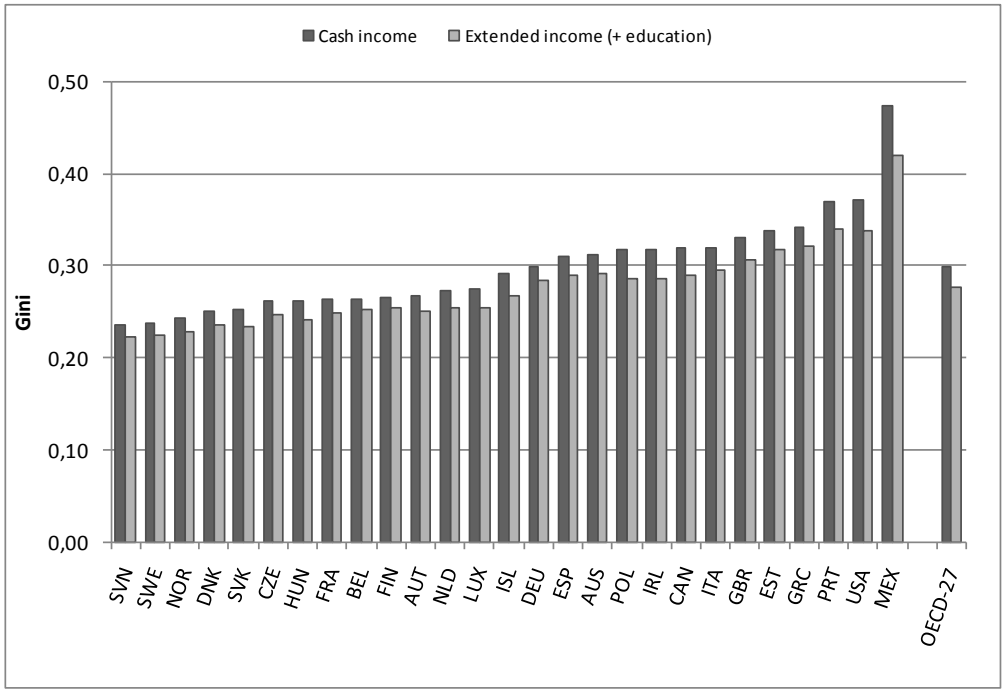
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

108. The distribution pattern of upper-secondary education tends to be similar to that of compulsory education (Figure 11 Panel C). In general, these expenditures are distributed rather equally. Countries in which less than 15% of expenditures go to the bottom quintile are Iceland, Germany, Mexico and the Netherlands (11-13%). Again, this pattern mirrors the relative position of beneficiaries within the income distribution (see Figure A.2 in Annex 1).

109. The pattern of the allocation of tertiary education services is quite different (see Figure 11 Panel D). The OECD-average indicates a regressive pattern with close to 30% of tertiary education expenditures going to the top quintile of the income distribution. This, however, hides considerable cross-country variation. The regressive pattern is most pronounced in Estonia and Mexico where the poorest 20% receive less than 8% of tertiary education spending while, in the Nordic countries and Germany, this group accounts for up to 51% of tertiary education services in Denmark and 25% in Iceland. In these countries, many students live away from their parents and are thus classified as a separate household and, due to low incomes, are often concentrated in the poorest 20% of the population (see also Figure A.3 in Annex 1).

110. The Gini coefficient drops considerably when including public education services in the income concept. On average, it falls from 0.30 to 0.28, with a relatively low decline in Belgium and Finland and more substantial reductions in countries like Mexico, Ireland and Poland (see Figure 12 and Table A.5 in Annex 1).

**Figure 12. Gini coefficient before and after inclusion of public education services.**



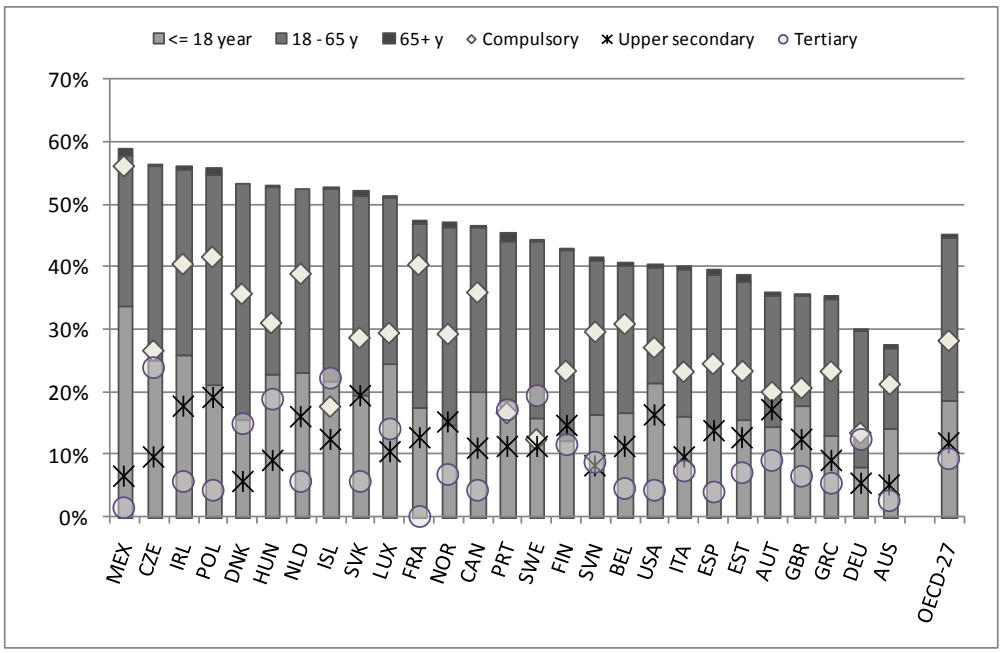

Note: Countries are ranked in increasing order of Gini for cash income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

111. The results of the poverty reduction potential indicator for total education are illustrated in Figure 13, which also gives the distribution over age groups. The poverty reduction potential of education expenditures is considerable: education services could reduce the poverty gap by around 44% on average, with the highest cuts in Mexico, the Czech Republic, Ireland and Poland (+55%), and the lowest cuts in Greece, Germany and Australia. The PRPI for education is split between the children and working age

individuals, which is again explained by the fact that parents also benefit from the education services their children enjoy.

**Figure 13. In-kind benefit from education services going below poverty line as a share of the poverty gap of disposable income, total, by age group and by education level, poverty line at 50% of median equivalent income**




*Note*: Countries are ranked in decreasing order of total education expenditures spent below the poverty line in percentage of the poverty gap.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

112. Looking at education levels separately reveals further patterns[31]. In most countries, compulsory education spending is the main driver behind the potential poverty-gap reduction: 28% (compulsory) compared to 12% (upper secondary) and 9% (tertiary). Especially Mexico, Poland, Ireland and Luxembourg report high levels, mainly due to high spending on compulsory education, but also because of relatively high shares of compulsory education pupils at the lower end of the distribution. The poverty reduction potential of upper secondary education is with an average of 12% also important. This category has a high score for this indicator (more than 15%) in Hungary, the Czech and Slovak Republics and in Belgium, Ireland and Poland. In most countries upper secondary education has a higher poverty reduction potential than tertiary education, except in the Nordic countries. In these countries, tertiary education expenditures have an indicator of around 20%.

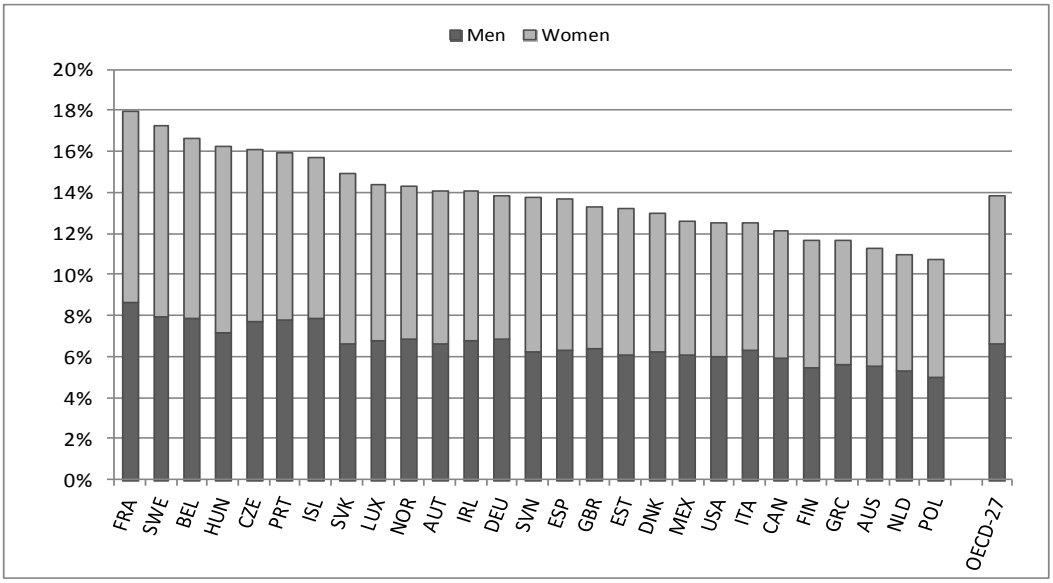
[31] It should be noted that the combined effect of two (or more) education expenditure categories can be smaller than the sum of the effect of both types considered separately, due to the fact that different education levels may occur in one household. Take a household that is USD 500 below the poverty line and receives in-kind benefits for compulsory education worth USD 1,000 and for upper secondary worth 2,000. Both benefits separately are sufficient to bring the household above the poverty line, so poverty reduction is attributed to both levels when looking at education levels separately. This is of course only an issue in households where the sum of benefits of different education levels is higher than its poverty gap.

### 4.6 The distributive impact of health care services

113. Previous research that bases the imputation of public health care expenditure on the insurance value approach reports a significant effect in reducing inequality in the distribution of economic resources (see Marical *et al.*, 2006 and 2008 for an overview). A main reason is that health care spending is concentrated on the elderly who, in general, have below-average cash incomes (Gardiner *et al.* 1995). Smeeding *et al*. (2008) report results for seven OECD countries that confirm these findings.

114. Imputing the value of health care services increases disposable income by some 14% on average, ranging from 11% in Poland, Australia and the Netherlands to 17% in Belgium, France and Sweden (Figure 14).[32] In general, expenditures on women make up a slightly larger proportion than those on men.

**Figure 14. In-kind benefit from health care services as a share of disposable income**



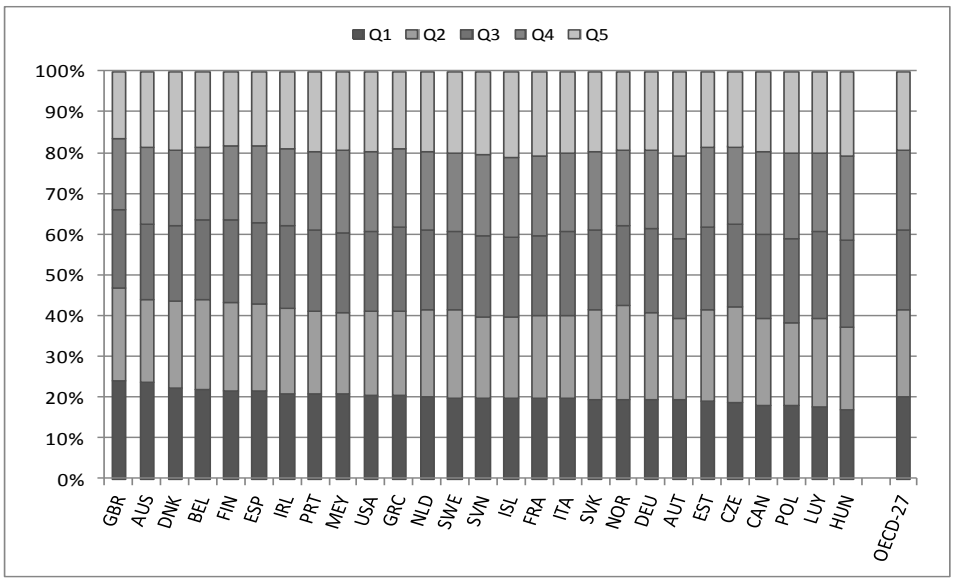

*Note*: Countries are ranked in decreasing order by share of total health care expenditures in disposable income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

115. The distribution of the income advantage deriving from health care is rather uniformly distributed in the OECD countries (Figure 15). Somewhat higher shares going to the bottom quintile are found in the United Kingdom and Australia, and shares somewhat below 18% in Q1 are found in Luxembourg and Hungary.

32 As in the case of education, the ranking of countries in terms of spending need not be the same as in OECD, 2008c (*Health at a Glance*), which uses GDP as a denominator, whereas here disposable income is used.

**Figure 15. Distribution of health care in-kind benefits over quintiles**

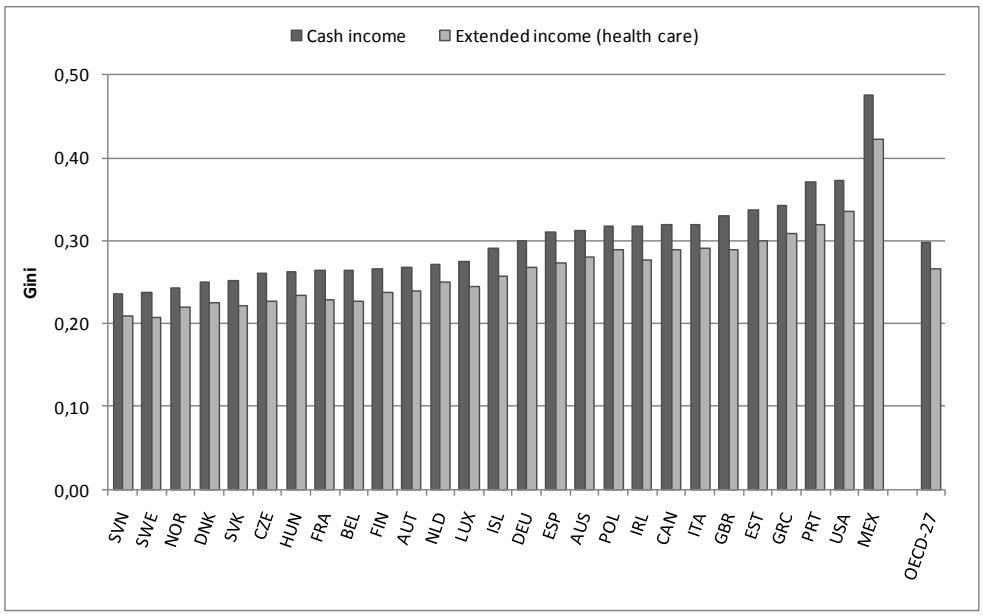



Note: Countries are ranked in decreasing order by share of health care expenditures in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

116. The Gini coefficient drops considerably when public health care services are included in the income concept. On average, it falls from 0.30 to 0.27, with relatively low decreases in Norway, the Netherlands, Poland and Italy and, contrasted to more important drops in countries like Belgium and Portugal (see Figure 16 and Table A.6 in Annex). The inequality-reducing effect of health care services is thus higher than that of education services, except in Canada, Italy, Mexico, Poland and the United States where health and education reduce inequality by approximately the same degree.

**Figure 16. Gini coefficient before and after inclusion of public health care services.**

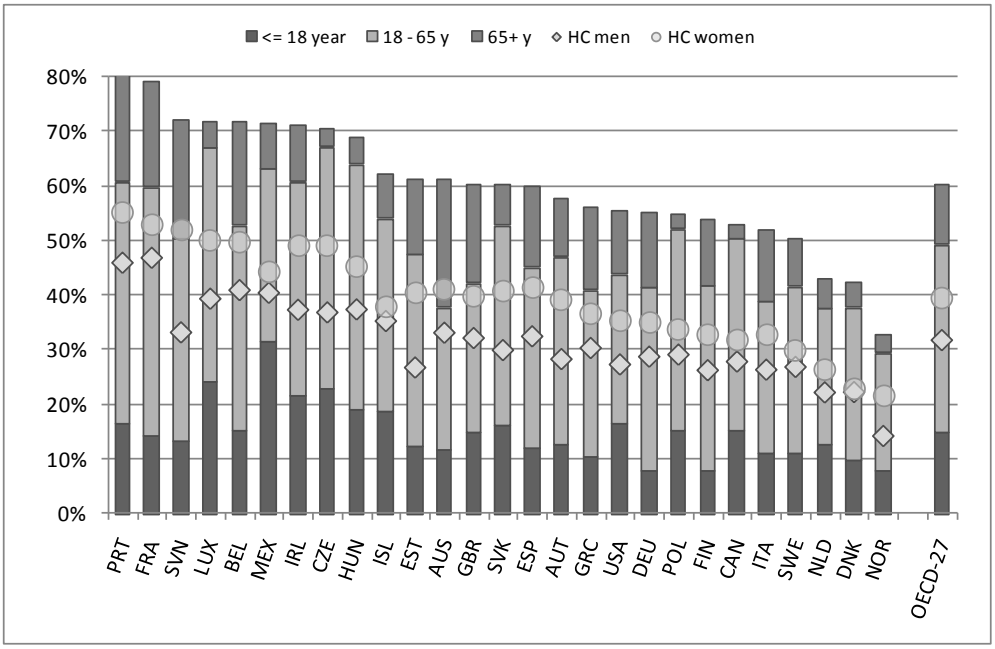



Note: Countries are ranked in increasing order of Gini for cash income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

117. Health care expenditures would reduce the poverty gap by 60% on average, which is even more than education expenditures (Figure 17). The estimated reduction potential of around 80% is very high in Portugal and France, and lower in Nordic countries and the Netherlands. As health care expenditures differ between men and women, it is interesting to distinguish the poverty impact of expenditures on men and women separately. In all countries, public health care expenditures on women have a far stronger poverty reducing potential than expenditures on men. This is due to the relative position of women in the income distribution, which is less favourable compared with that of men. The difference between men and women is most striking in Estonia, Slovenia and the Czech Republic.

**Figure 17. In-kind benefit from health care services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income**




*Note*: Countries are ranked in decreasing order of total health care expenditures spent below the poverty line in percentage of the poverty gap.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

118. How is the poverty reducion potential of health care services distributed over age groups? Working age individuals have the highest part of expenditures spent below the poverty line (though still below their share in the population). It is highest in France and Portugal and lowest in Norway and the Netherlands.

## 4.7 The distributive impact of social housing[33]

119. Previous studies (e.g. Gardiner *et al.*, 2005; Saunders and Siminski, 2005) suggest that social housing is probably the category of government services that benefit the poor the most. However, its overall impact is smaller than for health care and education because of the much lower amounts of spending. Social housing represents on average merely half a percent of disposable income. Nevertheless it is an important service for the beneficiaries. If the analysis is confined to reduced rent tenants (see last column of Table 8), social housing would increase their disposable income by 9% on average, with much higher shares in the United Kingdom and Ireland[34] (more than 14%). But elsewhere too (Belgium, Spain, Hungary and Italy), social housing represents more than 10% of disposable income for social renters. In general and by design, the income-increasing effect of social housing is largely confined to the lower-income quintiles – notable exceptions are the Czech Republic, Finland, Iceland, Norway and Sweden.

33 Note that no estimates for social housing are available for Australia, Canada, Denmark, Mexico, the Netherlands and the United States (see Chapter 3). Results for Greece and the Slovak Republic are only illustrative, given the low number of cases in social housing.

34 Note however that the overestimation of imputed rent in these two countries may play a role here, see Chapter 3.

**Table 8. Share of beneficiaries of social housing (SH) and in-kind benefit from social housing as a share of disposable income per quintile**

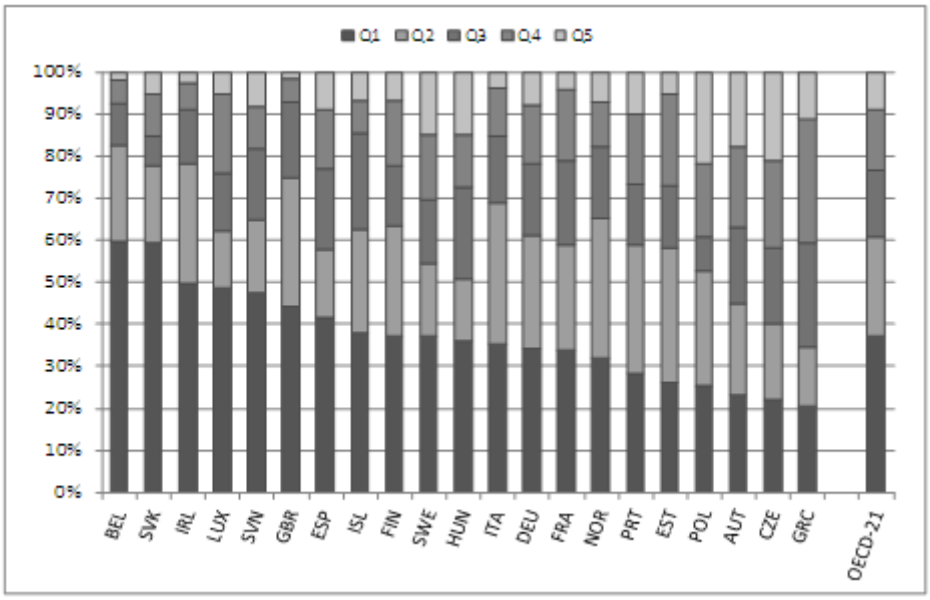
| | Share of beneficiaries of SH | | | | | | SH as share of disposable income, reduced rent tenants only | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Total | Q1 | Q2 | Q3 | Q4 | Q5 | Total |
| AUT | 8.1% | 7.1% | 6.3% | 5.4% | 5.2% | 6.4% | 10.1% | 6.7% | 5.0% | 4.8% | 3.0% | 5.2% |
| BEL | 17.8% | 9.4% | 4.6% | 2.7% | 1.2% | 7.1% | 20.4% | 10.0% | 6.5% | 5.1% | 2.5% | 11.6% |
| CZE | 27.6% | 17.9% | 15.8% | 15.5% | 12.1% | 17.8% | 10.1% | 8.5% | 7.8% | 7.2% | 6.0% | 7.7% |
| DEU | 9.4% | 6.6% | 4.6% | 4.0% | 1.9% | 5.3% | 9.5% | 6.3% | 4.4% | 3.4% | 2.5% | 5.3% |
| ESP | 5.5% | 2.7% | 2.7% | 2.3% | 1.3% | 2.9% | 28.8% | 11.6% | 9.3% | 6.2% | 4.0% | 10.6% |
| EST | 2.6% | 1.8% | 1.7% | 1.1% | 0.7% | 1.6% | 17.4% | 15.4% | 5.9% | 9.6% | 2.6% | 9.6% |
| FIN | 31.9% | 21.5% | 11.9% | 9.6% | 4.1% | 15.8% | 7.1% | 5.1% | 3.9% | 4.1% | 3.1% | 5.0% |
| FRA | 23.1% | 17.7% | 15.7% | 12.4% | 7.7% | 15.3% | 13.2% | 8.7% | 6.2% | 5.2% | 1.5% | 6.7% |
| GBR | 36.3% | 28.1% | 14.8% | 6.7% | 1.6% | 17.5% | 41.4% | 22.6% | 18.8% | 9.4% | 7.2% | 23.8% |
| GRC | 0.9% | 0.7% | 1.0% | 1.0% | 0.7% | 0.9% | 13.2% | 7.8% | 6.1% | 5.4% | 1.0% | 4.2% |
| HUN | 6.9% | 3.3% | 3.3% | 2.0% | 2.7% | 3.6% | 24.3% | 13.4% | 16.3% | 11.5% | 7.1% | 14.0% |
| IRL | 28.0% | 17.1% | 9.1% | 4.2% | 1.9% | 12.1% | 37.7% | 21.2% | 13.8% | 10.7% | 5.9% | 21.7% |
| ISL | 15.3% | 7.6% | 5.1% | 2.5% | 1.2% | 6.4% | 8.0% | 6.7% | 7.7% | 4.1% | 4.9% | 6.8% |
| ITA | 4.6% | 4.2% | 2.2% | 1.9% | 0.8% | 2.7% | 29.3% | 16.8% | 11.6% | 7.1% | 3.8% | 13.9% |
| LUX | 7.2% | 1.8% | 2.1% | 3.4% | 2.1% | 3.3% | 11.6% | 7.9% | 5.5% | 3.4% | 0.9% | 5.0% |
| NOR | 8.0% | 5.3% | 2.5% | 1.6% | 0.7% | 3.6% | 9.2% | 8.1% | 6.8% | 5.7% | 6.0% | 7.6% |
| POL | 1.7% | 1.5% | 0.6% | 0.8% | 0.7% | 1.1% | 10.8% | 8.0% | 4.3% | 5.0% | 4.4% | 6.2% |
| PRT | 11.5% | 10.1% | 5.8% | 7.4% | 3.1% | 7.6% | 13.5% | 9.7% | 6.2% | 3.9% | 3.2% | 6.7% |
| SVK | 1.1% | 0.5% | 0.2% | 0.5% | 0.2% | 0.5% | 8.9% | 3.9% | 3.4% | 1.3% | 1.4% | 4.0% |
| SVN | 4.0% | 1.8% | 1.2% | 1.3% | 0.7% | 1.8% | 6.0% | 3.1% | 3.8% | 1.7% | 1.5% | 3.4% |
| SWE | 3.5% | 2.4% | 1.5% | 1.4% | 1.4% | 2.0% | 5.2% | 2.3% | 2.5% | 2.1% | 1.5% | 2.6% |
| OECD-21 | 12.1% | 8.0% | 5.4% | 4.2% | 2.5% | 6.4% | 16.0% | 9.7% | 7.4% | 5.6% | 3.5% | 8.7% |

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

120. The fact that social housing is often targeted at low income households is confirmed in the first panel in Table 8 and in Figure 18. The share of beneficiaries decreases in all countries when moving up the income ladder. For instance in the United Kingdom 36% of individuals in the bottom quintile live in social housing, compared to less than 2% of the top quintile. But in other countries, 5 – 10 % of persons in the top quintile live in social housing. It may be surprising that social housing is still present in the top quintile, even when eligibility criteria include income ceilings. But often income ceilings apply at the moment of entry; the social renters may meanwhile improve their income position over time without being obliged to move to other housing. The share of social housing expenditures going to the bottom quintile is on average 37%, whereas the share of the top quintile is around 9% (Figure 43). However, the share going to the bottom quintile exceeds 50% in Belgium, the Slovak Republic and Ireland, and is only around 20% in Austria, the Czech Republic and Greece.

121. The effect of social housing on overall inequality is rather limited. The Gini coefficient drops on average with 1% (from 0.298 to 0.296) (see Table A.6 in Annex 1)). Notable exceptions are Ireland and the United Kingdom, with reductions of around 4%, which is closely linked to the size of the imputed benefit in these countries.

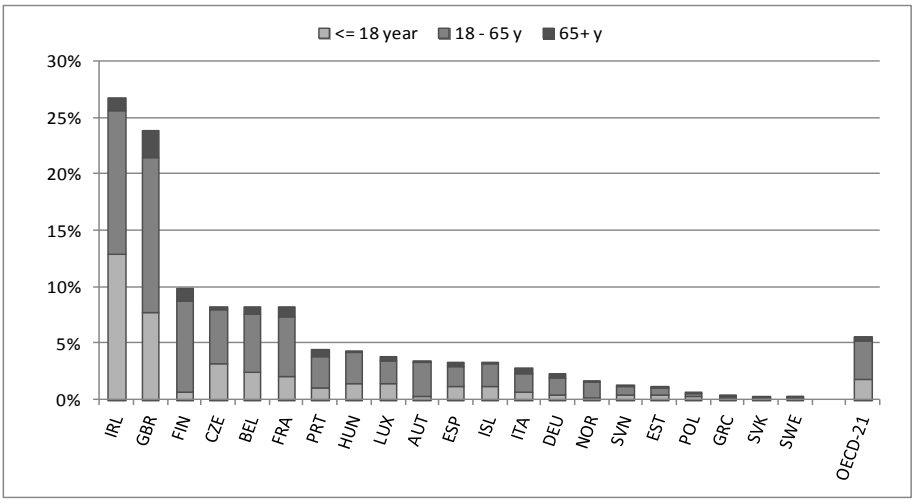
**Figure 18. Distribution of social housing benefit over quintiles**




*Notes*: 1) Countries are ranked in decreasing order by share of social housing expenditures in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

**Figure 19. In-kind benefit from social housing going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income**




*Note*: Countries are ranked in decreasing order of social housing expenditures spent below the poverty line in percentage of the poverty gap.
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

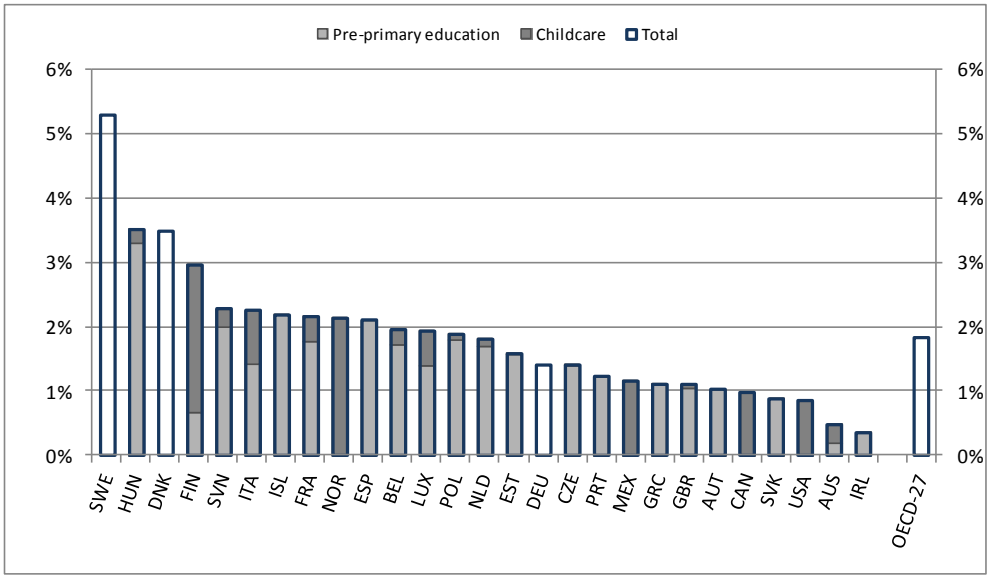
122. For most countries the poverty reduction potential is relatively limited (below 5%, which is the average). In Ireland and the United Kingdom social housing has a poverty reduction potential that is much higher than that in other countries, more than 20 %. The indicator is more modest, but still relatively high

(above 5%), in Finland, the Czech Republic, Belgium and France. In these countries, social housing consists of a non-negligible share of the housing market. In general, the PRPI is highest for working-age adults and children.

### 4.8 The distributive impact of early childhood education and childcare services[35]

123. Spending on early childhood education and childcare (ECEC) service can be important when compared to household income, ranging from 0.4% (Ireland) to 5% (Sweden) (Figure 20). For countries where both categories can be estimated, childcare expenditures are predominant in the Nordic countries (2.3% in Finland and 2.2% in Norway). In the other countries pre-primary education carries the biggest weight, with more than 2% in Hungary, Iceland, Spain and Slovenia.

**Figure 20. In-kind benefit from ECEC services as a share of disposable income**

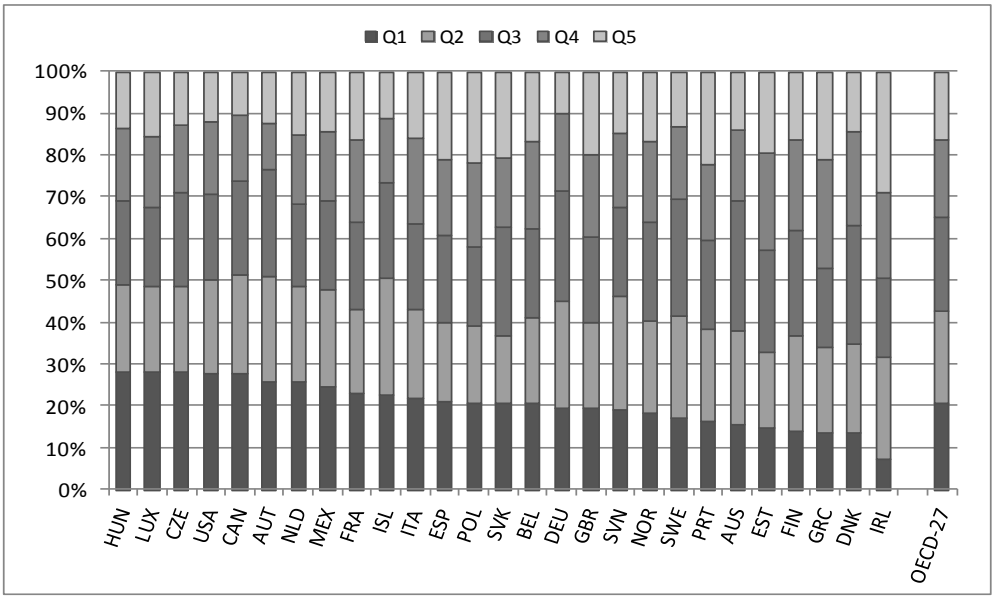



*Note*: Countries are ranked in decreasing order by share of ECEC expenditures in disposable income.
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

124. The distribution of ECEC services over income groups varies greatly over countries (Figure 21). In Hungary, Luxembourg, the Czech Republic, the United States and Canada, ECEC services tend to go more to the poorer groups: the first quintile receives almost 30% and the top quintile less than 15%. The opposite, i.e. a rather regressive distribution is observed in Estonia, Finland, Greece, Denmark and Ireland, where the lowest quintile receives less than 15% of all ECEC services. These patterns reflect the distribution of ECEC beneficiaries over quintiles (see Figure A.5 in Annex 1), resulting either from the demographic pattern (i.e. more or less young children in the quintile), or from differential use of ECEC services.

[35] A more detailed analysis of the distributive impact of ECEC services can be found in Förster and Verbist (2012).

**Figure 21. Distribution of ECEC in-kind benefits over quintiles**




*Note*: Countries are ranked in decreasing order by share of ECEC expenditures in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

125. To explain such distinction between demographic patterns and differential use, it is useful to study the composition ECEC users by income groups: are poorer or richer households more likely to enrol their young children in public care services? The answer is provided in Table 9 and may be surprising at first glance: in most countries, children in higher and top income households are more likely to be enrolled in public child care than those in lower-income households. This difference is particularly stark in Belgium, Poland, the United Kingdom, Ireland and the Slovak Republic. Only Canada, Czech Republic, Estonia and Germany have relatively more children from low-income households enrolled in ECEC Overall, more than two out of three children are enrolled in public child care in Belgium, Denmark, Iceland, the Netherlands, Spain and Sweden. ECEC enrolment rates are lowest (below one third) in Canada, Mexico, Poland and the United States.

**Table 9. Actual ECEC beneficiaries as a share of potential beneficiaries (children aged 0-6), by income quintile**

| | Q1 | Q2 | Q3 | Q4 | Q5 | Total |
|---|---|---|---|---|---|---|
| AUS | 33.0% | 35.0% | 50.8% | 39.3% | 42.4% | 40.1% |
| AUT | 38.1% | 44.7% | 46.6% | 42.8% | 47.7% | 43.2% |
| BEL | 54.2% | 69.9% | 71.6% | 75.7% | 79.0% | 69.2% |
| CAN | 30.9% | 32.9% | 29.2% | 27.5% | 26.3% | 29.8% |
| CZE | 44.1% | 45.6% | 46.9% | 40.0% | 40.7% | 43.8% |
| DEU | 65.8% | 59.9% | 67.9% | 61.0% | 57.1% | 62.8% |
| DNK | 80.1% | 80.4% | 86.0% | 86.8% | 84.6% | 83.8% |
| EST | 56.1% | 48.0% | 54.2% | 53.3% | 48.4% | 52.0% |
| ESP | 64.7% | 66.4% | 66.9% | 68.0% | 72.7% | 67.6% |
| FIN | 42.2% | 45.2% | 55.2% | 69.5% | 66.1% | 54.0% |
| FRA | 63.4% | 56.9% | 63.4% | 63.2% | 70.8% | 63.0% |
| GBR | 33.7% | 38.8% | 45.7% | 52.2% | 53.1% | 43.0% |
| GRC | 33.2% | 37.6% | 38.1% | 50.8% | 43.8% | 40.7% |
| HUN | 53.0% | 52.2% | 54.9% | 57.2% | 55.7% | 54.2% |
| IRL | 15.1% | 26.7% | 31.5% | 31.4% | 43.0% | 28.9% |
| ISL | 59.3% | 70.4% | 67.4% | 74.6% | 66.8% | 66.8% |
| ITA | 55.3% | 57.4% | 57.4% | 57.4% | 68.9% | 58.5% |
| LUX | 52.2% | 63.3% | 64.3% | 63.3% | 75.6% | 61.6% |
| MEX | 15.2% | 15.9% | 16.2% | 15.5% | 16.1% | 15.8% |
| NLD | 66.2% | 64.8% | 66.8% | 69.1% | 85.5% | 69.4% |
| NOR | 48.6% | 57.2% | 60.2% | 58.9% | 67.6% | 57.5% |
| POL | 17.4% | 17.2% | 20.6% | 24.5% | 31.5% | 21.8% |
| PRT | 46.5% | 45.3% | 54.8% | 68.1% | 68.3% | 56.2% |
| SWE | 70.6% | 70.6% | 72.6% | 70.0% | 69.6% | 70.9% |
| SVK | 29.3% | 33.4% | 56.1% | 42.4% | 64.8% | 43.2% |
| SVN | 56.2% | 64.1% | 62.0% | 57.7% | 62.7% | 60.4% |
| USA | 29.6% | 27.7% | 29.5% | 28.8% | 28.5% | 28.9% |
| | | | | | | |
| OECD-27 | 46.4% | 49.2% | 53.2% | 53.7% | 56.9% | 51.4% |

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

126. ECEC services imputed into household income represent a higher share of disposable income for poorer than for richer households. This pattern is most pronounced in Hungary, Iceland, Luxembourg, Sweden and Spain. In some of these countries, these in-kind benefits even amount to around 10% of disposable income in the bottom quintile. The share in the top quintile is much more limited, being around 1% in the majority of the countries.

127. As a consequence, in all countries inequality as measured by Gini coefficient decreases when including ECEC services in the income concept (see Table A.6 in Annex 1). On average, this decrease is small with some 1.2%. Reductions are strongest in Hungary, Iceland and Luxembourg. [36] The other two indicators (S80/S20 and P90/P10) give similar results.

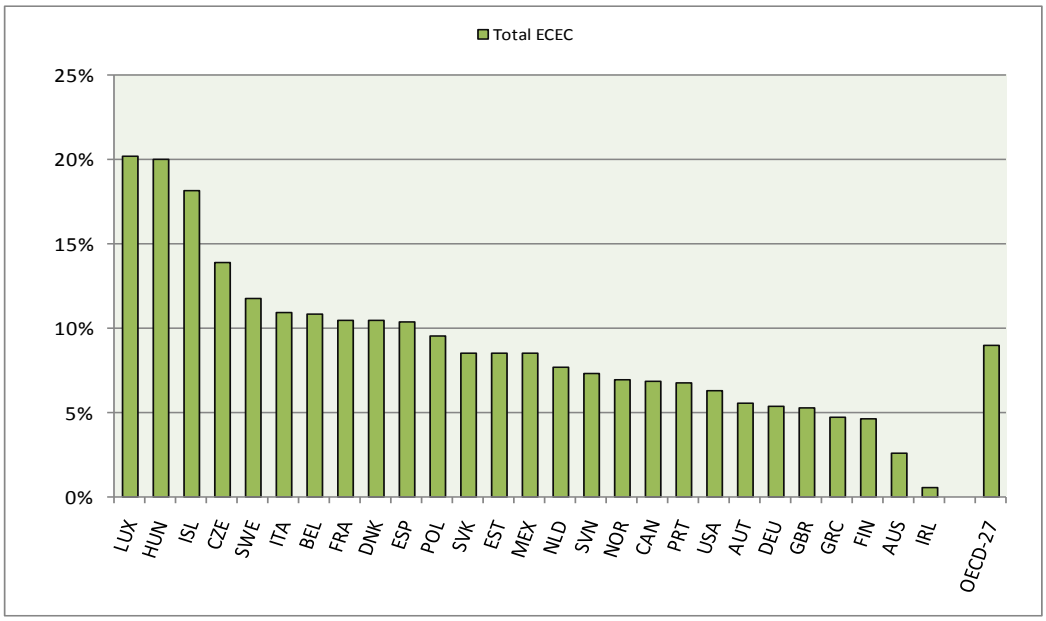
128. While this effect seems low with regard to the overall population, redistribution through childcare services is much stronger when the focus is on children and, furthermore, beneficiaries. Förster and Verbist (2012) show that the reduction in overall income poverty is negligible when ECEC services are accounted

[36] Though these are not the countries where the enrolment of low-income children is the highest, they have the highest shares of beneficiaries of ECEC services in low-income households: the bottom 20% in Hungary and Luxembourg, and the bottom 40% in Iceland.

for (less than 1%, for an average of 27 OECD countries). However, poverty among young children reduces by one quarter and poverty among children enrolled in childcare is more than halved.

129. An alternative way of looking at "pro-poorness" characteristics of services is to look at the amount of the expenditures below the poverty line. This amounts to more than 20% in Hungary and more than 10% in Iceland, Luxembourg, Sweden, the Czech Republic and the Netherlands.

**Figure 22. Income advantage from ECEC services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income**



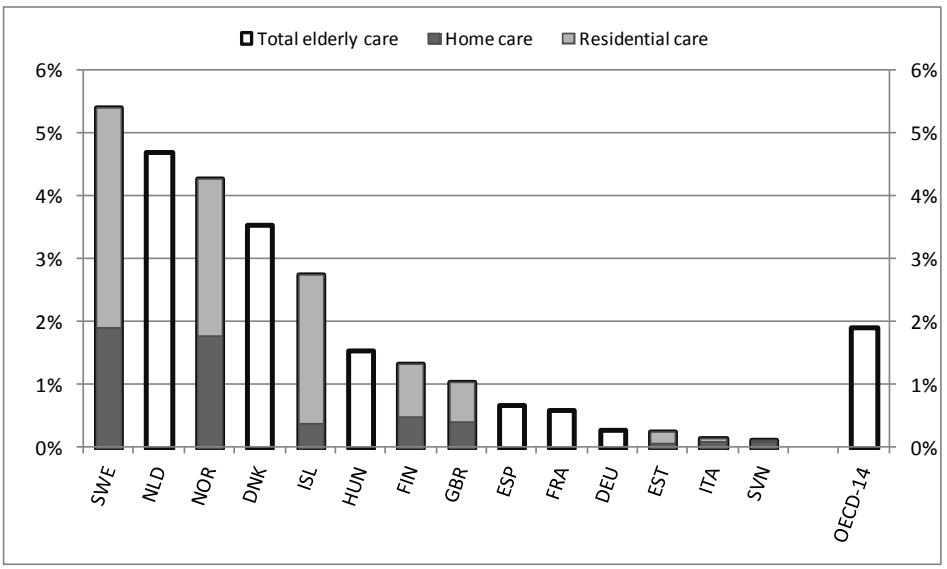

*Note*: Countries are ranked in decreasing order of total ECEC expenditures spent below the poverty line in percentage of the poverty gap.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

## 4.9 The distributive impact of long term elderly care services

130. Elderly care services represent less than 0.5% of disposable income in Germany, Estonia, Italy and Slovenia but more than 2% in the Nordic countries and the Netherlands (Figure 23). Even though these services benefit only a marginal proportion of the entire population, their redistributive impact can be significant, given the high levels of spending per person. The Nordic countries report the highest levels, which corresponds with their relatively high budget for this public service. For countries where a split between home care and residential care is available, residential care is in general more important.

**Figure 23. In-kind benefits for elderly care as a percentage of disposable income**

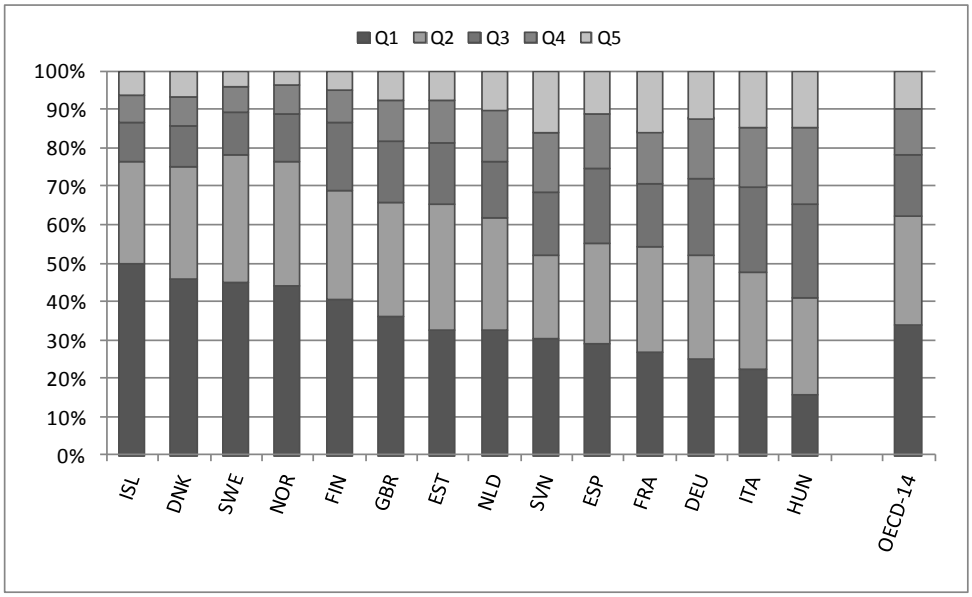



*Note*: Countries are ranked in decreasing order by share of LTC expenditures in disposable income.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

131. In most countries, elderly care expenditures are allocated more towards the bottom of the income distribution. In the Nordic countries the bottom quintile receives even 40%-50% of these services (Figure 24). The only exception is Hungary where spending in this category is more regressive. This pattern follows from the distribution of older people (i.e. the beneficiaries) over income quintiles.

**Figure 24. Distribution of elderly care expenditures over income quintiles**



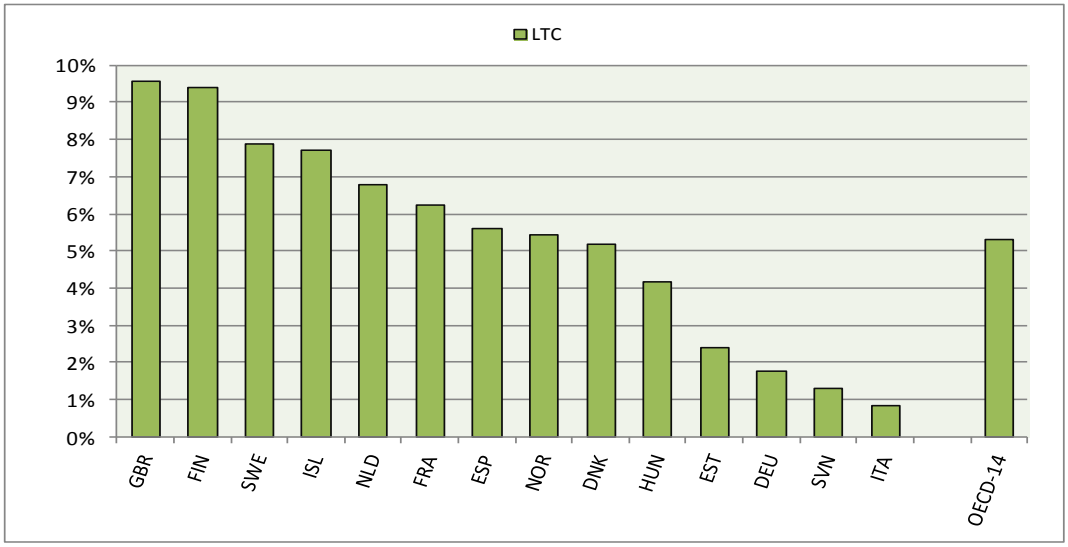

*Note*: Countries are ranked in decreasing order by share of LTC in-kind benefits in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

132. Overall, inequality reduction through elderly long-term care services is between 2 and 5 percent in the Nordic countries, the Netherlands and the United Kingdom and thus has a stronger redistributive effect than childcare in these countries. In the other countries, the redistributive effect is negligible (below 1 percent) (see Table A.6 in Annex 1).

133. Countries with the highest reduction in inequality are also the ones that report the largest shares of spending going to individuals below the poverty line, thus having the potential to reduce the poverty gap (Figure 25). Finland has with 12% the highest PRPI, followed by the other Nordic countries, the United Kingdom and the Netherlands with shares over 8%.

**Figure 25. Income advantage from long-term care (LTC) services going below poverty line as a share of the poverty gap of disposable income, poverty line at 50% of median equivalent income**




*Note*: Countries are ranked in decreasing order of total LTC expenditures spent below the poverty line in percentage of the poverty gap.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

## 5. THE DISTRIBUTIVE IMPACT OF PUBLIC SERVICES OVER TIME

134. How has the impact of public services evolved over time? For a sub-set of 17 OECD countries the distributive impact of public services can be compared over time with the earlier estimates presented in OECD (2008a) which referred to a year around 2000. As only health care, education and social housing were considered in OECD (2008a), the comparison is limited to these three policy domains. For reasons of consistency, the total of education comprises also pre-primary education[37].

135. The importance of public services has increased over time for all the 18 countries considered: in 2000 it amounted on average to 13% of GDP, whereas in 2007 it was 14% (Table 10.). Especially in the United Kingdom, the United States, Ireland and Greece, expenditures on public services became more important. In half of the countries, expenditures remained more stable and increased by less than one percentage point. Overall, especially public health care expenditures increased, whereas education expenditures and spending on other services remained rather stable.

37 The calculations for 2000 in OECD (2008a) are based on ECHP for the fifteen EU countries, on HILDA for Australia and on LIS-data for Canada and the United States. Results for Luxembourg are not entirely comparable as education had not been imputed in 2000. Regarding social housing, no estimates were possible in 2000 for Australia, Canada, Luxembourg, Sweden and the United States; in the most recent year, no estimates are available for Australia, Canada, Denmark, the Netherlands and the United States. Estimates of the value of social housing for 2007 use a correction for potential selection bias, which was not done for the 2000 calculation.

**Table 10. Evolution of public expenditures on in-kind transfers, in percentage of GDP, 2000 – 2007.**

| | Health | | Education | | Family | | Elderly | | Other | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2007 | 2000 | 2007 | 2000 | 2007 | 2000 | 2007 | 2000 | 2007 | 2000 | 2007 |
| **AUS** | 5.4% | 5.7% | 4.5% | 4.3% | 0.6% | 0.7% | 1.2% | 1.1% | 0.7% | 0.8% | 12.4% | 12.6% |
| **AUT** | 6.6% | 6.8% | 5.6% | 5.4% | 0.4% | 0.5% | 0.4% | 0.4% | 0.4% | 0.5% | 13.5% | 13.6% |
| **BEL** | 6.6% | 7.3% | 5.9% | 6.0% | 0.8% | 0.9% | 0.1% | 0.1% | 1.1% | 0.7% | 14.5% | 15.1% |
| **CAN** | 6.2% | 7.0% | 5.1% | 4.9% | 0.2% | 0.2% | 0.0% | 0.0% | 2.8% | 2.7% | 14.3% | 14.8% |
| **DEU** | 8.1% | 7.8% | 4.4% | 4.5% | 0.7% | 0.7% | 0.0% | 0.0% | 0.9% | 1.2% | 14.1% | 14.3% |
| **DNK** | 5.1% | 6.5% | 8.3% | 7.8% | 1.8% | 1.8% | 1.7% | 1.7% | 2.0% | 2.2% | 18.9% | 20.0% |
| **ESP** | 5.2% | 6.1% | 4.3% | 4.3% | 0.7% | 0.7% | 0.2% | 0.4% | 0.4% | 0.5% | 10.7% | 12.0% |
| **FIN** | 5.1% | 6.1% | 6.0% | 5.9% | 1.3% | 1.3% | 0.8% | 1.0% | 1.3% | 1.4% | 14.5% | 15.7% |
| **FRA** | 7.1% | 7.5% | 6.0% | 5.6% | 1.5% | 1.7% | 0.2% | 0.3% | 1.0% | 1.0% | 15.9% | 16.0% |
| **GBR** | 5.5% | 6.8% | 4.3% | 5.4% | 0.9% | 1.1% | 0.4% | 0.5% | 1.9% | 1.8% | 13.0% | 15.7% |
| **GRC** | 4.7% | 5.9% | 3.4% | 4.0% | 0.4% | 0.4% | 0.1% | 0.1% | 1.1% | 0.9% | 9.7% | 11.3% |
| **IRL** | 4.6% | 5.8% | 4.3% | 4.9% | 0.2% | 0.3% | 0.3% | 0.3% | 0.4% | 0.4% | 9.8% | 11.7% |
| **ITA** | 5.8% | 6.6% | 4.5% | 4.3% | 0.6% | 0.7% | 0.1% | 0.1% | 0.1% | 0.1% | 11.1% | 11.9% |
| **LUX** | 5.2% | 6.4% | … | … | 0.5% | 0.5% | 0.0% | 0.0% | 0.7% | 1.1% | .. | .. |
| **NLD** | 5.0% | 6.0% | 5.0% | 5.3% | 0.8% | 1.4% | 0.7% | 0.8% | 0.7% | 0.8% | 12.1% | 14.2% |
| **PRT** | 6.2% | 6.6% | 5.4% | 5.3% | 0.4% | 0.4% | 0.0% | 0.1% | 0.1% | 0.1% | 12.1% | 12.5% |
| **SWE** | 6.3% | 6.6% | 7.2% | 6.7% | 1.5% | 1.9% | 2.5% | 2.3% | 2.4% | 2.7% | 19.8% | 20.1% |
| **USA** | 5.9% | 7.2% | 4.9% | 5.3% | 0.6% | 0.6% | 0.0% | 0.0% | 0.2% | 0.3% | 11.6% | 13.4% |
| **OECD-18** | 5.8% | 6.6% | 5.2% | 5.3% | 0.8% | 0.9% | 0.5% | 0.5% | 1.0% | 1.1% | 13.3% | 14.4% |

Source: OECD Social Expenditure database, OECD Education database, OECD Health database.

136. Overall, the inequality impact of public services has remained remarkably stable: on average across the OECD countries studied here, the Gini coefficient decreases by almost one fifth in both years (Table 11.). In one third of countries, inequality reduction has increased by more than two percentage points (Belgium, Canada, Spain, Finland, United Kingdom, Ireland). In another third, the redistributive impact has, however, fallen (Austria, Germany, Denmark, Italy, the Netherlands and Sweden) and in the remaining third, changes were below two points (results for the interquintile share ratio are presented in Table A.6 in Annex 1).

137. In both years the distributive effect of health care services is the strongest inequality reducing component on average with a reduction of 11% in both years. In some countries inequality reduction through health care services increases (notably Belgium, Canada, Spain, the United Kingdom, Ireland and Portugal), which are all countries that experienced an increase in their public health care expenditures. On the contrary, in a number of countries the inequality impact of public health care has weakened (notably Australia, Germany, Denmark, Greece, Italy and the Netherlands). The distributive impact of education has rather decreased over time on average. Only in Belgium, Finland, Greece and Ireland has the inequality reduction become stronger due to the inclusion of public education expenditures in the income concept. Social housing has a small tendency of becoming more redistributive over time, but given that different countries are involved and that the methodology differs somewhat for both years, it is difficult to draw conclusions.

**Table 11. Evolution of redistributive impact of publicly provided services, Gini coefficient, 2000 - 2007(*)**

| | 2000 | | | | | 2007 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cash income | Health care | Education | Housing | All | Cash income | Health care | Education | Housing | All |
| **AUS** | 0.315 | -12.2% | -7.2% | … | -18.3% | 0.312 | -10.3% | -6.6% | … | -16.4% |
| **AUT** | 0.248 | -10.7% | -10.0% | -0.7% | -20.1% | 0.267 | -10.5% | -7.4% | -0.3% | -18.0% |
| **BEL** | 0.284 | -12.2% | -5.0% | -0.7% | -17.1% | 0.264 | -14.3% | -5.8% | -1.5% | -21.0% |
| **CAN** | 0.302 | -8.4% | -8.4% | … | -15.9% | 0.319 | -9.6% | -8.6% | … | -18.7% |
| **DEU** | 0.258 | -12.0% | -6.4% | -0.6% | -18.6% | 0.300 | -10.4% | -5.3% | -0.3% | -15.7% |
| **DNK** | 0.216 | -16.0% | -6.8% | -0.4% | -22.2% | 0.250 | -10.0% | -6.1% | … | -17.0% |
| **ESP** | 0.343 | -9.7% | -9.2% | 0.0% | -17.7% | 0.310 | -11.6% | -7.9% | -0.4% | -19.2% |
| **FIN** | 0.246 | -10.5% | -3.3% | -0.7% | -14.1% | 0.266 | -10.8% | -4.9% | -1.1% | -16.2% |
| **FRA** | 0.272 | -12.7% | -8.8% | -0.5% | -21.0% | 0.264 | -13.0% | -7.5% | -1.1% | -20.6% |
| **GBR** | 0.310 | -10.9% | -8.2% | -2.1% | -19.9% | 0.330 | -12.5% | -7.6% | -4.6% | -23.0% |
| **GRC** | 0.327 | -11.4% | -5.1% | … | -15.8% | 0.342 | -9.6% | -6.5% | 0.0% | -15.9% |
| **IRL** | 0.297 | -11.3% | -8.0% | -2.1% | -19.2% | 0.317 | -12.5% | -10.2% | -3.4% | -23.5% |
| **ITA** | 0.295 | -12.9% | -12.5% | -0.5% | -24.1% | 0.320 | -9.2% | -9.0% | -0.5% | -18.4% |
| ***(LUX*** | *0.263* | *-11.1%* | *…* | *…* | *-11.1%* | *0.275* | *-10.7%* | *-10.3%* | *-0.3%* | *-20.6%)* |
| **NLD** | 0.259 | -10.2% | -11.1% | -0.7% | -20.9% | 0.272 | -8.1% | -8.1% | … | -16.4% |
| **PRT** | 0.362 | -12.8% | -12.1% | -0.6% | -23.1% | 0.370 | -13.6% | -8.8% | -0.5% | -21.3% |
| **SWE** | 0.249 | -11.9% | -10.9% | … | -22.6% | 0.237 | -12.4% | -6.4% | … | -19.1% |
| **USA** | 0.368 | -10.1% | -10.1% | … | -18.8% | 0.372 | -9.8% | -9.8% | … | -18.5% |
| **OECD-17** | **0.291** | **-11.4%** | **-8.5%** | **-0.6%** | **-19.3%** | **0.301** | **-11.1%** | **-7.6%** | **-0.8%** | **-18.8%** |

(*) the most recent year is 2004 for Canada and the United States of America.

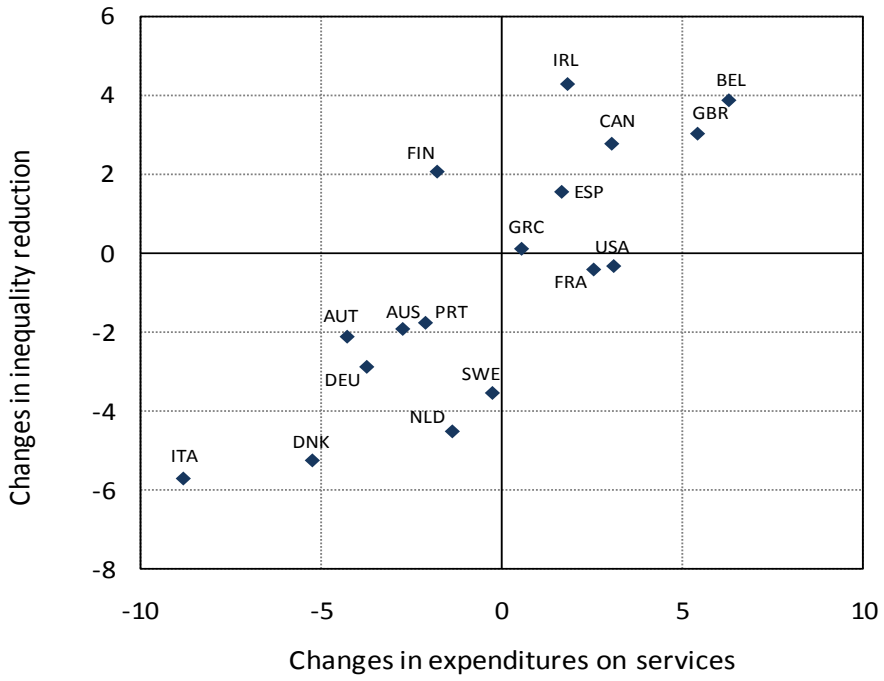
*Note*: OECD-average excludes Luxembourg, as no estimates for education are available for 2000.

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

138. There is a strong link between changes in the relative size of health, education and housing services (expressed as share of disposable income) and changes in the effectiveness of these services to reduce inequality across countries (Figure 26).[38] Belgium and the United Kingdom are two countries which combine a considerable increase in spending with a large extent of inequality reduction. On the other side of the spectrum, Italy and Denmark record a fall in inequality reduction alongside a decreasing size of services. The only notable exception to this pattern is Finland where inequality was reduced more despite a slight reduction in the size of services.

[38] Note that in Figure 26 the value of public services expressed as a share of disposable income is used as an indicator for size (contrary to Table 10, which uses GDP as a denominator).

**Figure 26. Association between trends in size of expenditures on public services (as a share of disposable income) and changes in inequality reduction, 2000 - 2007**




Note: Percentage point changes in the share of in-kind benefits of services in disposable income, and of the percentage reduction in inequality (Gini coefficient), respectively.

Source: OECD (2008a); OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

# 5. SUMMARY AND CONCLUSION

139. This paper looks at how the income distribution in countries changes when the value of publicly-provided services to households is included. It considers five major categories of public services: education, health care, social housing, childcare and elderly care. The empirical results in this study refer to 2007 for Australia and the European countries, and to 2004 for Canada, Mexico and the United States. Some comparisons with results for previous years around 2000 are also presented. The study also gives appropriate weight to discussing the methodological underpinning of imputing such "in-kind" income and the consequences of applying alternative definitions and concepts. In particular, two very recently developed approaches to account for differences in needs are tested and compared. Finally, the results presented in this study are novel not only with regard to time and country coverage but also by analyzing the effect of particular services separately.

## 5.1 Identifying the size of social public services

140. Public social services are social spending flows controlled by the General Government that can be attributed to individual beneficiaries. Education and health care services are major categories under this heading but also other social services, like those for childcare, elderly care, invalidity, etc. are relevant in this context.

141. Spending on publicly-provided services accounts for about 13% of GDP on average across OECD countries, slightly more than the spending on cash transfers.[39] But there is considerable variation across countries. In most of the Nordic countries, Australia, Canada, Mexico, the Netherlands, Ireland, the United Kingdom and the United States, spending on "in-kind" transfers is considerably higher than cash transfer expenditures. On the contrary, cash transfers are more dominant than in-kind services in Austria, Italy and Poland.

142. There is a large variation in the size of services across OECD countries. The shares of in-kind services in GDP range from simple to double digits: from around 8% in Turkey and Chile to close to 20% in Denmark and Sweden. On average, the bulk of these services is made up of health care and education services, some 5 to 6 % of GDP each. The remaining 2% consist of care services to children and the elderly and social housing.

## 5.2 Valuating and allocating public services: methodological challenges

143. Before imputing the value of these services in household income and analyzing their redistributive potential, the paper focuses in chapter 3 on the methodological challenges for empirically investigating the distributive outcomes of including public services in an extended income concept. These challenges include 1) the valuation of public services, 2) the allocation of these services (i.e. the identification of beneficiaries), 3) the adjustment of the equivalence scale for needs associated with the services, and 4) the specification of indicators to measure the poverty impact. For each of these challenges, this report provides a contribution.

[39] The public effort on this type of social services is, however, not fully captured, as policy domains like public transportation and public utilities are not included.

144. With respect to the issue of valuation, the standard approach of using the value of producing or providing the service is applied for all services included but one: for social housing, the value of the in-kind benefit is derived from prevailing market rents. For allocating the value of a public service to beneficiaries, two possible methodological approaches can be used. This study applies the "actual use approach" as the preferred one for imputing education, early childhood education and childcare services and for social housing. For conceptual reasons but also because actual users of health care and long-term elderly care cannot be identified with the data used in this study, the "insurance value approach" is applied for these latter two categories.

145. The third challenge relates to the fact that public services correspond to specific needs that are not captured in the traditional equivalence scales used to correct cash disposable income for household size and composition. Even though this problem has for long been recognized in the literature, most existing studies apply the same equivalence scale for both cash and extended income. Recently, two innovative approaches have been put forward in the literature to tackle this issue. Both use actual expenditures to derive, on the one hand, an augmented equivalence scale that incorporates these needs (approach proposed by Aaberge et al. 2010) and to develop, on the other hand, a sensitivity analysis that takes account of different public spending levels across countries (proposed by Paulus et al., 2010).

146. This study applies both these approaches and compares the resulting estimates in order to test the sensitivity of the results for alternative specifications of the equivalence scale. Results in terms of redistributive effects based on the first approach are, however, not much different from the "standard" one, i.e. using the square root of household size scale for both cash and extended income. Using the second approach results in some cross-country variation of redistributive outcomes that are revealed by looking at cash incomes only, though differences are not large. Consequently, the "standard approach" using the square root of household size scale was used throughout this paper, for both cash and extended income.

147. With respect to the fourth challenge, an additional alternative way of capturing the possible poverty impact of public services is proposed. The poverty reduction potential indicator shows what the overall impact of in-kind benefits on poverty would be, given the current level and distribution of these benefits and the current composition of the poor population. It gives an indication of the extent to which these services might reduce the poverty gap if these in-kind benefits were given in cash to the beneficiaries.

### 5.3 The distributive impact of public services

148. Broadening the income concept to account for in-kind benefits considerably increases households' economic resources and impacts on inequality and poverty outcomes. If all social public services were imputed in disposable cash income, households' resources would increase by close to 30%, on average. The increase exceeds 40% in Sweden and 30% in Denmark, Norway, Iceland, as well as in France and Hungary. In a typical OECD country, the average annual household income would be close to USD 28 000, rather than USD 22 000 in purchasing power parities when in-kind benefits are included.

149. Publicly-provided service benefits also contribute to reducing income inequality. Depending on the indicator, in-kind benefits taken together reduce income inequality by one fifth (on the basis of the Gini coefficient) to almost one third (when alternative inequality measures are used which give more weight to the bottom and the top of the income distribution). The United Kingdom and, according to most inequality measures, the United States, Mexico and Portugal achieve higher reduction rates while Slovenia records lower ones. There is, however, no systematic relation between initial inequality levels in terms of cash income and levels of inequality reduction through inclusion of in-kind benefits, but some high-inequality countries record high reduction levels. The variation in inequality levels across OECD countries is somewhat reduced when taking account of publicly provided services – but only when using more tail-sensitive inequality measures such as quintile share or percentile ratios.

150. Imputing public services in household income also reduces poverty estimates to a considerable amount. At-risk-of poverty rates fall substantially, by almost 40% when a "floating" poverty line is used and even by close to 80% when a "fixed" poverty line is used.[40] Consequently, in-kind benefits taken together would have the potential to reduce the poverty gap with on average 80%. The poverty impact is larger than average for children and elderly, because of their higher use of education and health services.

151. Redistributive and poverty reduction effects differ between service categories. By their sheer size, benefits from total education and health have by far the largest inequality reduction potential. The impact of social housing is much more modest, due to the lower budgetary amounts. However, for beneficiaries (social renters) this service can make a difference, especially as it is more targeted to low-income groups. The same is true for child care services and long-term elderly care: small overall effects, but important reductions for the groups concerned. Overall income poverty, for instance, hardly reduced when childcare services are accounted for, but poverty among young children falls by one quarter and poverty among children enrolled in childcare is more than halved.

152. Over the 2000s, the redistributive impact of public services has remained remarkably stable on average across OECD countries. However, this impact got stronger in those countries where the share of services in household income increased significantly, i.e. by more than four percentage points (e.g. Belgium) and it weakened in those countries where this share strongly decreased (e.g. Italy).

153. Taken together, these findings suggest that publicly provided services fulfil an important redistributive role in OECD societies. These effects are substantial also in some of the OECD countries which record higher inequality levels on the basis of disposable household income only. More importantly, redistributive effects are larger for some specific population groups at higher risk of poverty. This is all the more noticeable as redistribution is not among the prime aims of delivering public services.

154. There are several issues which this study cannot address. Differences in the quality of services – across but also within countries – is one of the most important among those. In order to materialise the considerable redistributive potentials calculated in the analyses above, policies need to ensure that high-quality health, education and care services are made available to all citizens. Moreover, in a dynamic perspective, public childcare provision has a potential for secondary redistributive effects as childcare allows both parents to work and hence helps increase family income. If such an increase is coupled with a greater use of childcare by children from lower-income households this could reveal a considerable inequality reduction potential among households with children.

155. Another issue not addressed in this study concerns the tax side of redistribution. As most of the available studies, this report takes account of the effects of *direct* income taxation (income taxes and employees' social security contributions) but disregards the impact of *indirect* consumption taxes. It can be expected that consumption taxation is not distributionally neutral and further work is necessary to estimate their impact on household income in a cross-country comparative perspective.[41]

156. At the time of writing, many OECD member countries are considering and implementing consolidation policies in the aftermath of the financial and economic crisis. This paper provides a large amount of background information which will be helpful in evaluating eventual distributive consequences

[40] A "fixed" poverty line uses the same poverty threshold for disposable cash and extended income, namely 50% of the median disposable cash income. A "floating" poverty line recalculates the poverty threshold in order to comprise both cash and in-kind elements. It thus captures the effect of the re-ranking of individuals and the change in relative income differentials that may occur when moving from the cash disposable income distribution to that of extended income.

[41] Preliminary evidence in OECD (2008a) suggests that consumption taxes overall would slightly rise inequality measures – but by less than these would decrease when taking into account in-kind transfers.

when weighing measures which would impact on spending on particular transfers in cash or in publicly provided services.

## ANNEX 1: ADDITIONAL TABLES AND FIGURES

**Table A.1: Covariates used in the opportunity cost approach, EU-SILC 2007.**

| Covariates |
|---|
| Type of the dwelling:<br>• Detached house<br>• Semi-detached house<br>• Apartment/flat in building with <10 dwellings<br>• Apartment/flat in building with ≥10 dwellings |
| Size of the dwelling:<br>• 1 room in house<br>• 2 rooms<br>• 3 rooms<br>• 4 rooms<br>• 5 rooms<br>• 6 or more rooms |
| Quality of the dwelling:<br>• Moisture free?<br>• Possible to keep home adequately warm?<br>• Modern comfort present? (bath / shower / indoor flushing toilet)<br>• Dwelling too dark?<br>• Central heating? |
| Quality of the neighbourhood<br>• Noise from neighbours / street?<br>• Pollution, grime or other environmental problem?<br>• Crime, violence or vandalism in the area? |
| Geographical location<br>• Densely populated area<br>• Intermediate area<br>• Thinly populated area |
| Occupancy in years |
| Household disposable income (only when OLS is used) |

**Table A.2: Estimates of imputed rent for reduced rent tenants, after adding random error term (5 replications), EU-SILC 2007.**

(1) = average amount of imputed rent per month; (2) = share of social rent households with negative estimates

| | Estimation 1 | | Estimation 2 | | Estimation 3 | | Estimation 4 | | Estimation 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| **AUT** | 72 | 34.0% | 80 | 33.1% | 85 | 31.6% | 74 | 35.2% | 84 | 35.7% |
| **BEL** | 183 | 18.4% | 189 | 15.2% | 184 | 17.0% | 181 | 16.2% | 195 | 17.2% |
| **CZE** | 42 | 35.4% | 37 | 38.3% | 34 | 38.7% | 40 | 37.7% | 38 | 38.2% |
| **DEU** | 65 | 34.6% | 64 | 34.4% | 64 | 36.7% | 67 | 35.3% | 70 | 35.2% |
| **EST** | 47 | 19.7% | 54 | 26.8% | 37 | 29.6% | 24 | 33.8% | 37 | 21.1% |
| **ESP** | 152 | 20.8% | 151 | 20.8% | 159 | 23.5% | 151 | 22.0% | 147 | 20.3% |
| **FIN** | 40 | 40.4% | 42 | 40.3% | 50 | 39.2% | 45 | 42.6% | 47 | 39.9% |
| **FRA** | 115 | 42.2% | 63 | 40.5% | 65 | 40.7% | 72 | 40.9% | 60 | 41.8% |
| **GBR** | 354 | 17.0% | 351 | 17.6% | 364 | 17.7% | 363 | 17.2% | 341 | 18.0% |
| **GRC** | 58 | 35.7% | 28 | 40.5% | 84 | 28.6% | 26 | 28.6% | 27 | 33.3% |
| **HUN** | 80 | 15.6% | 86 | 13.2% | 73 | 14.6% | 75 | 13.5% | 81 | 11.8% |
| **IRL** | 580 | 9.2% | 547 | 9.7% | 546 | 6.5% | 535 | 9.7% | 581 | 6.8% |
| **ISL** | 193 | 28.7% | 140 | 33.3% | 153 | 31.6% | 163 | 31.6% | 143 | 35.1% |
| **ITA** | 193 | 15.0% | 190 | 17.1% | 193 | 15.4% | 186 | 15.6% | 177 | 16.8% |
| **LUX** | 149 | 40.3% | 138 | 39.6% | 77 | 45.9% | 95 | 45.9% | 101 | 37.1% |
| **NOR** | 17 | 37.3% | 20 | 33.0% | 50 | 28.2% | 53 | 30.1% | 45 | 29.7% |
| **POL** | 21 | 29.9% | 32 | 21.5% | 24 | 25.7% | 28 | 27.8% | 23 | 24.3% |
| **PRT** | 57 | 33.2% | 58 | 29.1% | 55 | 33.5% | 59 | 31.9% | 54 | 31.9% |
| **SWE** | -4 | 50.0% | -10 | 54.6% | -10 | 48.7% | 5 | 55.9% | -5 | 51.3% |
| **SVN** | 13 | 42.5% | 7 | 50.0% | 19 | 39.2% | 10 | 48.3% | 11 | 40.8% |
| **SVK** | 14 | 25.0% | 3 | 25.0% | 19 | 12.5% | 16 | 16.7% | 9 | 25.0% |

Source: OECD Secretariat's calculations from EU-SILC 2007

**Table A.3: Poverty thresholds used in the analysis (50%) of median equivalent income), single person, 2007.**

| | Cash disposable (a) | Income extended with expenditures on | | | | | | (b)/(a) | (c)/(a) | d)/(a) | (e)/(a) | (f)/(a) | (g)/(a) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All (b) | Education (c) | Health Care (d) | Social Housing (e) | ECEC (f) | LTC (g) | | | | | | |
| **AUS** | 19072 | 23519 | 21114 | 21434 | 19072 | 19253 | 19072 | 1.23 | 1.11 | 1.12 | 1.00 | 1.01 | 1.00 |
| **AUT** | 10170 | 13362 | 11567 | 11744 | 10192 | 10296 | 10170 | 1.31 | 1.14 | 1.15 | 1.00 | 1.01 | 1.00 |
| **BEL** | 9754 | 13083 | 11116 | 11504 | 9794 | 9996 | 9754 | 1.34 | 1.14 | 1.18 | 1.00 | 1.02 | 1.00 |
| **CAN** | 14695 | 19550 | 17310 | 16940 | 14695 | 14980 | 14695 | 1.33 | 1.18 | 1.15 | 1.00 | 1.02 | 1.00 |
| **CZE** | 3015 | 4112 | 3466 | 3631 | 3051 | 3070 | 3015 | 1.36 | 1.15 | 1.20 | 1.01 | 1.02 | 1.00 |
| **DEU** | 9625 | 12493 | 10733 | 11201 | 9642 | 9810 | 9655 | 1.30 | 1.12 | 1.16 | 1.00 | 1.02 | 1.00 |
| **DNK** | 12464 | 17528 | 14809 | 14233 | 12464 | 13163 | 13008 | 1.41 | 1.19 | 1.14 | 1.00 | 1.06 | 1.04 |
| **ESP** | 6813 | 8924 | 7621 | 7884 | 6839 | 7004 | 6854 | 1.31 | 1.12 | 1.16 | 1.00 | 1.03 | 1.01 |
| **EST** | 2496 | 3375 | 2921 | 2905 | 2504 | 2557 | 2502 | 1.35 | 1.17 | 1.16 | 1.00 | 1.02 | 1.00 |
| **FIN** | 10118 | 13582 | 11705 | 11493 | 10177 | 10543 | 10214 | 1.34 | 1.16 | 1.14 | 1.01 | 1.04 | 1.01 |
| **FRA** | 8959 | 12532 | 10425 | 10788 | 9044 | 9201 | 9007 | 1.40 | 1.16 | 1.20 | 1.01 | 1.03 | 1.01 |
| **GBR** | 11507 | 15297 | 12865 | 13400 | 11921 | 11629 | 11609 | 1.33 | 1.12 | 1.16 | 1.04 | 1.01 | 1.01 |
| **GRC** | 5713 | 7151 | 6264 | 6549 | 5725 | 5810 | 5713 | 1.25 | 1.10 | 1.15 | 1.00 | 1.02 | 1.00 |
| **HUN** | 2214 | 3156 | 2622 | 2646 | 2228 | 2312 | 2261 | 1.43 | 1.18 | 1.20 | 1.01 | 1.04 | 1.02 |
| **IRL** | 12683 | 17486 | 15195 | 14736 | 12836 | 12778 | 12683 | 1.38 | 1.20 | 1.16 | 1.01 | 1.01 | 1.00 |
| **ISL** | 15820 | 22834 | 18989 | 18925 | 15899 | 16358 | 16518 | 1.44 | 1.20 | 1.20 | 1.01 | 1.03 | 1.04 |
| **ITA** | 8298 | 10735 | 9269 | 9552 | 8327 | 8533 | 8309 | 1.29 | 1.12 | 1.15 | 1.00 | 1.03 | 1.00 |
| **LUX** | 16555 | 21990 | 18948 | 19386 | 16600 | 16955 | 16555 | 1.33 | 1.14 | 1.17 | 1.00 | 1.02 | 1.00 |
| **MEX** | 15058 | 22143 | 19030 | 17927 | 15058 | 15400 | 15058 | 1.47 | 1.26 | 1.19 | 1.00 | 1.02 | 1.00 |
| **NLD** | 9985 | 13441 | 11463 | 11223 | 9985 | 10217 | 10530 | 1.35 | 1.15 | 1.12 | 1.00 | 1.02 | 1.05 |
| **NOR** | 15564 | 21813 | 18121 | 18050 | 15592 | 15984 | 16366 | 1.40 | 1.16 | 1.16 | 1.00 | 1.03 | 1.05 |
| **POL** | 2045 | 2673 | 2367 | 2310 | 2045 | 2090 | 2045 | 1.31 | 1.16 | 1.13 | 1.00 | 1.02 | 1.00 |
| **PRT** | 4336 | 6050 | 5080 | 5234 | 4348 | 4417 | 4336 | 1.40 | 1.17 | 1.21 | 1.00 | 1.02 | 1.00 |
| **SVK** | 2314 | 3006 | 2621 | 2702 | 2314 | 2331 | 2314 | 1.30 | 1.13 | 1.17 | 1.00 | 1.01 | 1.00 |
| **SVN** | 5837 | 7821 | 6819 | 6722 | 5838 | 6003 | 5842 | 1.34 | 1.17 | 1.15 | 1.00 | 1.03 | 1.00 |
| **SWE** | 10010 | 14874 | 11675 | 11904 | 10017 | 10676 | 10647 | 1.49 | 1.17 | 1.19 | 1.00 | 1.07 | 1.06 |
| **USA** | 13304 | 17482 | 15371 | 15321 | 13304 | 13460 | 13304 | 1.31 | 1.16 | 1.15 | 1.00 | 1.01 | 1.00 |
| **OECD-27** | 9571 | 12963 | 11092 | 11124 | 9612 | 9808 | 9705 | 1.35 | 1.16 | 1.16 | 1.00 | 1.02 | 1.01 |

**Table A.4: Share of age groups in total population, 2007.**

| | <=18 | 18-65 | 66+ | Total |
|---|---|---|---|---|
| AUS | 24.1% | 64.1% | 11.7% | 100% |
| AUT | 18.8% | 65.3% | 15.9% | 100% |
| BEL | 20.8% | 63.6% | 15.6% | 100% |
| CAN | 21.8% | 66.5% | 11.7% | 100% |
| CZE | 18.2% | 68.5% | 13.3% | 100% |
| DEU | 17.1% | 64.9% | 18.0% | 100% |
| DNK | 22.1% | 63.4% | 14.6% | 100% |
| EST | 18.8% | 65.0% | 16.2% | 100% |
| ESP | 17.2% | 66.9% | 15.9% | 100% |
| FIN | 21.0% | 63.9% | 15.1% | 100% |
| FRA | 21.2% | 63.0% | 15.8% | 100% |
| GBR | 22.1% | 63.2% | 14.6% | 100% |
| GRC | 17.4% | 64.7% | 17.9% | 100% |
| HUN | 20.6% | 65.5% | 14.0% | 100% |
| IRL | 27.1% | 62.8% | 10.1% | 100% |
| ISL | 25.9% | 63.5% | 10.6% | 100% |
| ITA | 16.9% | 63.7% | 19.4% | 100% |
| LUX | 21.6% | 65.4% | 13.0% | 100% |
| MEX | 37.5% | 56.9% | 5.6% | 100% |
| NLD | 21.9% | 64.6% | 13.5% | 100% |
| NOR | 23.4% | 62.5% | 14.0% | 100% |
| POL | 19.5% | 67.5% | 13.0% | 100% |
| PRT | 18.4% | 64.9% | 16.7% | 100% |
| SWE | 22.2% | 61.3% | 16.5% | 100% |
| SVK | 16.7% | 70.1% | 13.2% | 100% |
| SVN | 18.3% | 67.6% | 14.0% | 100% |
| USA | 25.3% | 63.4% | 11.3% | 100% |
| | | | | |
| OECD-27 | 21.3% | 64.5% | 14.1% | 100% |

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries

**Table A.5. Inequality indicators for cash and extended income (total of public services)**

| | Gini | | | S80/S20 | | | P90/P10 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Cash | Extended income | % Δ | Cash | Extended income | % Δ | Cash | Extended income | % Δ |
| **AUS** | 0.312 | 0.260 | -16.6% | 5.35 | 3.81 | -28.7% | 4.45 | 3.21 | -27.9% |
| **AUT** | 0.267 | 0.219 | -18.0% | 3.92 | 3.04 | -22.5% | 3.26 | 2.57 | -21.2% |
| **BEL** | 0.264 | 0.209 | -21.0% | 3.97 | 2.88 | -27.4% | 3.37 | 2.49 | -26.3% |
| **CAN** | 0.319 | 0.259 | -18.7% | 5.40 | 3.78 | -29.9% | 4.38 | 3.07 | -29.8% |
| **CZE** | 0.261 | 0.207 | -20.7% | 3.66 | 2.80 | -23.7% | 3.07 | 2.39 | -22.2% |
| **DEU** | 0.300 | 0.249 | -16.9% | 4.88 | 3.57 | -26.8% | 3.80 | 2.89 | -24.0% |
| **DNK** | 0.250 | 0.194 | -22.3% | 3.68 | 2.69 | -27.0% | 2.88 | 2.21 | -23.1% |
| **ESP** | 0.310 | 0.248 | -19.9% | 5.33 | 3.54 | -33.5% | 4.38 | 3.04 | -30.7% |
| **EST** | 0.338 | 0.280 | -17.1% | 5.82 | 4.21 | -27.6% | 4.51 | 3.55 | -21.4% |
| **FIN** | 0.266 | 0.218 | -18.2% | 3.83 | 3.00 | -21.6% | 3.13 | 2.53 | -19.3% |
| **FRA** | 0.264 | 0.209 | -21.0% | 3.83 | 2.84 | -25.8% | 3.19 | 2.47 | -22.5% |
| **GBR** | 0.330 | 0.252 | -23.6% | 5.59 | 3.53 | -37.0% | 4.38 | 2.84 | -35.1% |
| **GRC** | 0.342 | 0.288 | -15.9% | 6.05 | 4.22 | -30.3% | 4.77 | 3.45 | -27.7% |
| **HUN** | 0.262 | 0.201 | -23.3% | 3.79 | 2.76 | -27.2% | 3.14 | 2.35 | -25.1% |
| **IRL** | 0.317 | 0.242 | -23.5% | 5.00 | 3.36 | -32.7% | 4.00 | 2.83 | -29.3% |
| **ISL** | 0.291 | 0.227 | -22.1% | 4.21 | 3.08 | -26.9% | 3.23 | 2.43 | -25.0% |
| **ITA** | 0.320 | 0.262 | -18.2% | 5.53 | 3.77 | -31.8% | 4.32 | 3.10 | -28.2% |
| **LUX** | 0.275 | 0.220 | -20.1% | 4.01 | 3.02 | -24.7% | 3.38 | 2.61 | -22.7% |
| **MEX** | 0.475 | 0.375 | -21.1% | 12.20 | 6.21 | -49.1% | 8.54 | 4.60 | -46.1% |
| **NLD** | 0.272 | 0.220 | -19.0% | 4.00 | 3.00 | -25.0% | 3.04 | 2.44 | -19.9% |
| **NOR** | 0.242 | 0.193 | -20.2% | 3.74 | 2.79 | -25.4% | 3.02 | 2.38 | -21.1% |
| **POL** | 0.317 | 0.259 | -18.2% | 5.17 | 3.71 | -28.3% | 4.25 | 3.12 | -26.5% |
| **PRT** | 0.370 | 0.291 | -21.3% | 6.61 | 4.20 | -36.4% | 5.29 | 3.46 | -34.5% |
| **SVK** | 0.251 | 0.204 | -19.1% | 3.59 | 2.79 | -22.5% | 2.99 | 2.41 | -19.5% |
| **SVN** | 0.236 | 0.196 | -17.2% | 3.40 | 2.75 | -19.1% | 2.96 | 2.47 | -16.6% |
| **SWE** | 0.237 | 0.181 | -23.4% | 3.46 | 2.59 | -25.3% | 2.83 | 2.26 | -20.4% |
| **USA** | 0.372 | 0.303 | -18.5% | 7.78 | 4.76 | -38.9% | 5.85 | 3.72 | -36.4% |
| **OECD-27** | **0.298** | **0.239** | **-19.8%** | **4.95** | **3.43** | **-28.7%** | **3.94** | **2.85** | **-26.0%** |

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

**Table A.6. Change (%) in inequality indicators after inclusion of in-kind benefits from public services in income concept (education, health care, social housing (*), ECEC and LTC (**) services)**

| | Gini | | | | | | S80/S20 | | | | | | P90/P10 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cash | plus education | plus health care | plus social housing | plus ECEC | plus LTC | Cash | plus education | plus health care | plus social housing | plus ECEC | plus LTC | Cash | plus education | plus health care | plus social housing | plus ECEC | plus LTC |
| **AUS** | 0.312 | -6.6% | -10.3% | | -0.4% | | 5.35 | -10.2% | -21.5% | | -0.7% | | 4.45 | -7.8% | -21.0% | | -0.4% | |
| **AUT** | 0.267 | -6.3% | -10.5% | -0.3% | -1.4% | | 3.92 | -6.6% | -14.7% | -0.3% | -1.5% | | 3.26 | -7.0% | -15.3% | -0.4% | -1.5% | |
| **BEL** | 0.264 | -4.4% | -14.3% | -1.5% | -1.5% | | 3.97 | -5.1% | -20.1% | -2.7% | -2.4% | | 3.37 | -3.5% | -19.8% | -3.4% | -1.7% | |
| **CAN** | 0.319 | -9.1% | -9.6% | | -1.2% | | 5.40 | -15.5% | -17.0% | | -2.4% | | 4.38 | -15.8% | -15.2% | | -2.0% | |
| **CZE** | 0.261 | -5.1% | -13.3% | -0.8% | -1.6% | | 3.66 | -6.2% | -15.3% | -1.2% | -2.2% | | 3.07 | -5.5% | -15.5% | -1.8% | -2.7% | |
| **DEU** | 0.300 | -5.1% | -10.4% | -0.3% | -1.2% | 0.1% | 4.88 | -8.7% | -18.7% | -0.7% | -2.0% | -0.7% | 3.80 | -6.6% | -16.0% | -0.6% | -1.4% | -0.6% |
| **DNK** | 0.250 | -5.7% | -10.0% | 0.0% | -1.1% | -5.0% | 3.68 | -7.5% | -14.5% | | -1.3% | -5.8% | 2.88 | -2.2% | -14.1% | 0.0% | -0.6% | -6.8% |
| **ESP** | 0.310 | -6.4% | -11.6% | -0.4% | -1.4% | -0.8% | 5.33 | -11.7% | -22.7% | -1.0% | -3.1% | -2.2% | 4.38 | -7.8% | -21.3% | -0.7% | -1.1% | -3.1% |
| **EST** | 0.338 | -6.0% | -11.3% | -0.1% | -1.0% | -0.3% | 5.82 | -8.1% | -20.9% | -0.3% | -1.8% | -0.8% | 4.51 | -1.4% | -18.8% | 0.1% | -0.8% | -1.1% |
| **FIN** | 0.266 | -4.3% | -10.8% | -1.1% | -1.0% | -2.5% | 3.83 | -3.1% | -14.5% | -1.9% | -0.3% | -3.9% | 3.13 | 0.1% | -14.3% | -2.2% | -0.4% | -4.8% |
| **FRA** | 0.264 | -5.8% | -13.0% | -1.1% | -1.8% | -0.8% | 3.83 | -7.1% | -17.5% | -1.8% | -2.5% | -1.1% | 3.19 | -5.3% | -14.5% | -1.7% | -1.5% | -0.8% |
| **GBR** | 0.330 | -7.0% | -12.5% | -4.6% | -0.7% | -1.6% | 5.59 | -11.2% | -22.8% | -8.9% | -1.3% | -3.6% | 4.38 | -9.4% | -20.7% | -8.8% | -1.1% | -3.7% |
| **GRC** | 0.342 | -5.9% | -9.6% | 0.0% | -0.5% | | 6.05 | -12.5% | -20.4% | -0.1% | -1.3% | | 4.77 | -10.9% | -19.9% | -0.2% | -1.0% | |
| **HUN** | 0.262 | -8.2% | -10.5% | -0.5% | -2.8% | -1.3% | 3.79 | -9.8% | -13.2% | -0.9% | -4.3% | -1.2% | 3.14 | -8.4% | -11.2% | -1.0% | -5.3% | -1.5% |
| **IRL** | 0.317 | -10.1% | -12.5% | -3.4% | -0.1% | | 5.00 | -11.9% | -20.4% | -7.0% | 0.0% | | 4.00 | -8.4% | -19.3% | -7.8% | 0.4% | |
| **ISL** | 0.291 | -7.9% | -11.4% | -0.5% | -2.5% | -3.1% | 4.21 | -9.0% | -15.8% | -1.0% | -3.6% | -4.0% | 3.23 | -7.1% | -14.2% | -1.0% | -4.1% | -5.4% |
| **ITA** | 0.320 | -7.8% | -9.2% | -0.5% | -1.5% | 0.0% | 5.53 | -14.2% | -19.4% | -1.0% | -3.2% | -0.4% | 4.32 | -10.5% | -18.3% | -1.1% | -2.0% | |
| **LUX** | 0.275 | -7.6% | -10.7% | -0.3% | -2.3% | | 4.01 | -9.3% | -13.7% | -0.5% | -4.0% | | 3.38 | -7.8% | -12.9% | -0.4% | -3.8% | |
| **MEX** | 0.475 | -11.5% | -11.2% | | -1.3% | | 12.20 | -30.3% | -33.9% | | -4.6% | | 8.54 | -29.4% | -31.0% | | -3.3% | |
| **NLD** | 0.272 | -6.4% | -8.1% | 0.0% | -1.8% | -2.9% | 4.00 | -9.2% | -13.4% | | -2.7% | -2.8% | 3.04 | -3.9% | -10.7% | 0.0% | -2.9% | -1.3% |
| **NOR** | 0.242 | -5.8% | -9.1% | -0.4% | -1.1% | -4.6% | 3.74 | -9.2% | -13.0% | -0.6% | -1.4% | -4.9% | 3.02 | -4.7% | -12.5% | -0.5% | -1.0% | -5.6% |
| **POL** | 0.317 | -9.9% | -8.6% | -0.1% | -1.1% | | 5.17 | -16.2% | -15.3% | -0.1% | -2.1% | | 4.25 | -15.6% | -14.3% | -0.1% | -2.0% | |
| **PRT** | 0.370 | -8.0% | -13.6% | -0.5% | -0.9% | | 6.61 | -13.6% | -26.5% | -1.3% | -1.7% | | 5.29 | -11.4% | -22.3% | -1.6% | -2.5% | |
| **SVK** | 0.251 | -6.7% | -12.1% | 0.0% | -0.6% | | 3.59 | -8.0% | -15.1% | -0.1% | -1.0% | | 2.99 | -6.6% | -14.4% | -0.2% | -0.9% | |
| **SVN** | 0.236 | -5.8% | -11.3% | -0.1% | -0.9% | -0.1% | 3.40 | -5.3% | -14.3% | -0.2% | -0.9% | -0.2% | 2.96 | -2.6% | -12.4% | 0.0% | 0.2% | -0.2% |
| **SWE** | 0.237 | -5.6% | -12.4% | -0.1% | -1.5% | -4.2% | 3.46 | -6.2% | -15.8% | -0.1% | -0.9% | -3.9% | 2.83 | -2.4% | -13.4% | 0.0% | 1.2% | -2.1% |
| **USA** | 0.372 | -9.0% | -9.8% | | -0.9% | | 7.78 | -19.7% | -26.1% | | -3.2% | | 5.85 | -18.3% | -24.4% | | -3.1% | |
| **OECD-27** | **0.298** | **-7.0%** | **-11.0%** | **-0.8%** | **-1.2%** | **-1.8%** | **4.95** | **-10.6%** | **-18.4%** | **-1.6%** | **-2.3%** | **-2.4%** | **3.94** | **-8.2%** | **-17.0%** | **-1.7%** | **-1.8%** | **-2.6%** |

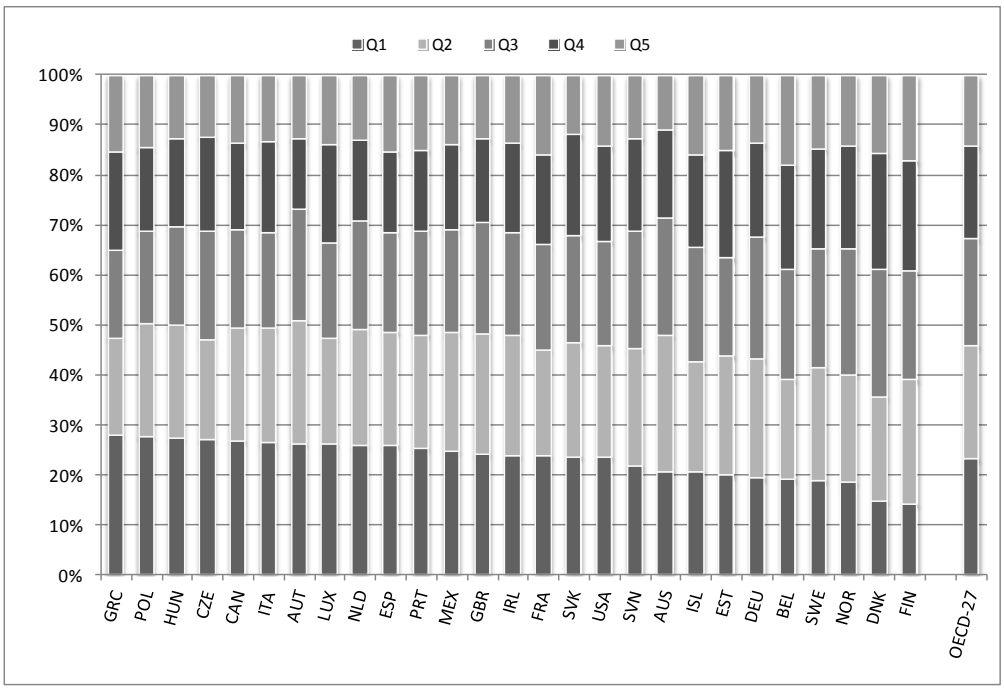
(*) Average for social housing over 21 countries; (**) average for LTC over 14 countries.
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

**Table A.7. Impact on inequality (S80/S20) of publicly provided services over time, 2000 and 2007 (*)**

| | 2000 | | | | | 2007 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cash income | Health care | Education | Housing | All | Cash income | Health care | Education | Housing | All |
| **AUS** | 5.17 | -21.5% | -9.9% | … | -28.6% | 5.35 | -21.5% | -10.4% | … | -28.5% |
| **AUT** | 3.65 | -15.0% | -10.6% | -1.1% | -23.8% | 3.92 | -14.7% | -8.0% | -0.3% | -22.3% |
| **BEL** | 4.14 | -17.8% | -4.4% | -1.5% | -22.7% | 3.97 | -20.1% | -6.6% | -2.7% | -26.1% |
| **CAN** | 4.88 | -14.0% | -13.2% | … | -24.6% | 5.40 | -17.0% | -17.2% | … | -29.9% |
| **DEU** | 3.71 | -15.8% | -7.3% | -0.9% | -22.6% | 4.88 | -18.7% | -8.9% | -0.7% | -25.2% |
| **DNK** | 3.10 | -18.7% | -5.4% | -0.5% | -24.1% | 3.68 | -14.5% | -7.6% | … | -23.1% |
| **ESP** | 5.99 | -19.3% | -17.2% | 0.0% | -31.3% | 5.33 | -22.7% | -14.3% | -1.0% | -32.3% |
| **FIN** | 3.56 | -13.9% | -2.0% | -0.9% | -17.3% | 3.83 | -14.5% | -3.6% | -1.9% | -18.4% |
| **FRA** | 4.06 | -18.1% | -10.9% | -0.6% | -27.2% | 3.83 | -17.5% | -9.1% | -1.8% | -24.4% |
| **GBR** | 5.02 | -18.6% | -13.8% | -4.1% | -31.0% | 5.59 | -22.8% | -12.1% | -8.9% | -32.0% |
| **GRC** | 5.67 | -22.7% | -7.7% | … | -28.0% | 6.05 | -20.4% | -13.4% | -0.1% | -30.3% |
| **IRL** | 4.88 | -20.0% | -10.9% | -4.7% | -29.4% | 5.00 | -20.4% | -12.1% | -7.0% | -29.8% |
| **ITA** | 4.85 | -21.5% | -19.0% | -1.0% | -34.8% | 5.53 | -19.4% | -16.3% | -1.0% | -31.5% |
| ***LUX*** | *3.76* | *-14.5%* | … | … | *-14.5%* | *4.01* | *-13.7%* | *-12.5%* | *-0.5%* | *-24.1%* |
| **NLD** | 3.73 | -12.8% | -13.7% | -1.3% | -25.3% | 4.00 | -13.4% | -11.0% | … | -22.8% |
| **PRT** | 6.47 | -25.7% | -20.7% | -1.5% | -38.5% | 6.61 | -26.5% | -14.4% | -1.3% | -36.0% |
| **SWE** | 3.58 | -14.3% | -12.9% | … | -26.0% | 3.46 | -15.8% | -6.7% | -0.1% | -22.6% |
| **USA** | 7.14 | -22.9% | -21.2% | … | -36.2% | 7.78 | -26.1% | -21.7% | … | -38.9% |
| **OECD-17** | **4.75** | **-19.0%** | **-12.7%** | **-1.1%** | **-28.8%** | **4.95** | **-19.9%** | **-12.3%** | **-1.6%** | **-29.0%** |

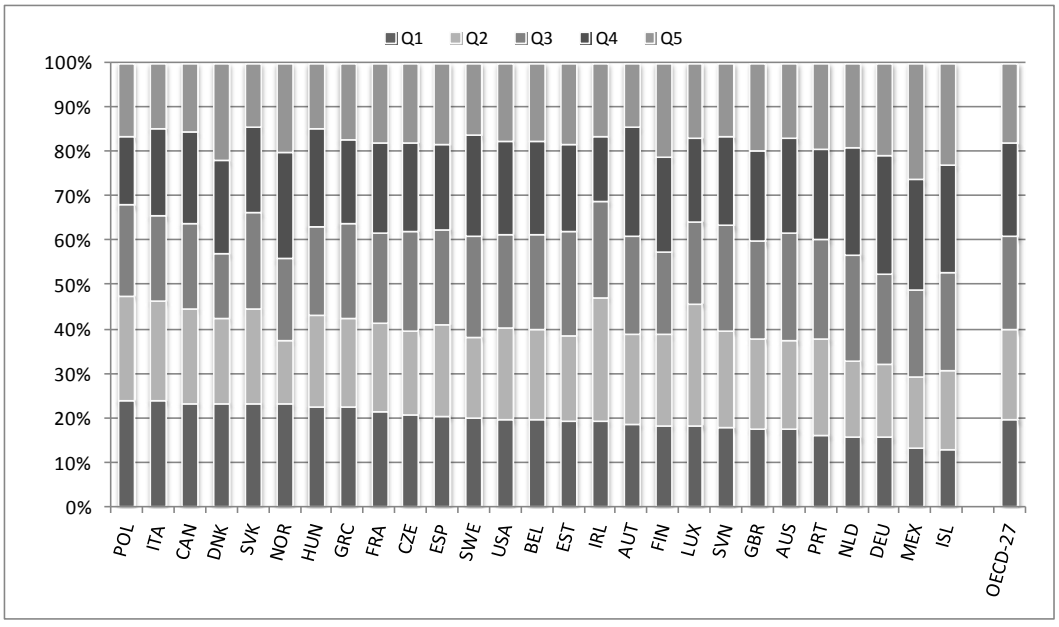
(*) the most recent year is 2004 for Canada and the United States of America.
Note: OECD-average excludes Luxembourg, as no estimates for education are available for 2000.

**Figure A. 1 Distribution of beneficiaries of compulsory education over quintiles**




*Note*: Countries are ranked in decreasing order by share of beneficiaries in the bottom quintile (Q1).
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

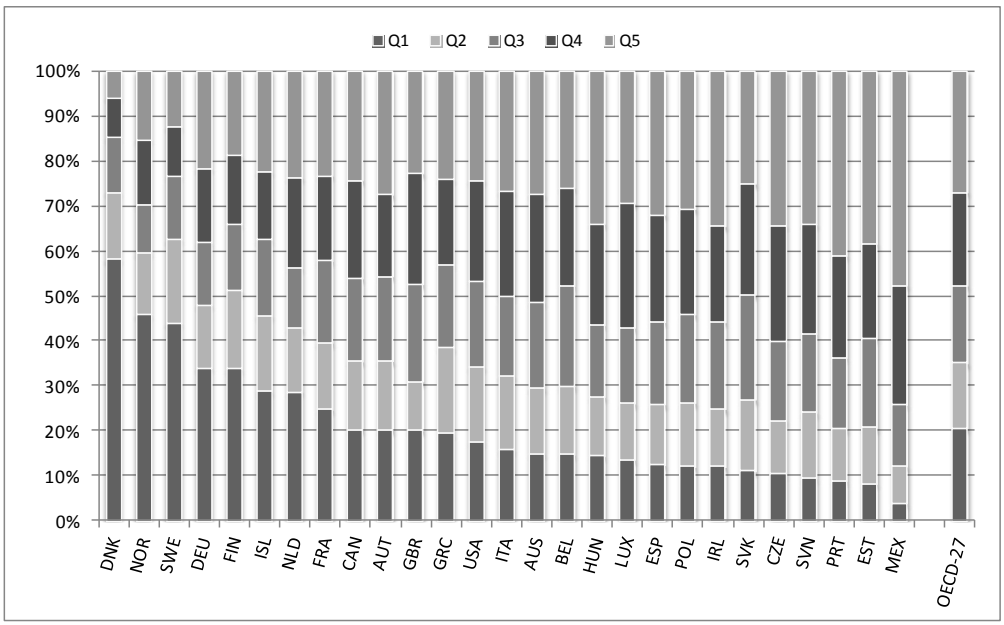
**Figure A. 2 Distribution of beneficiaries of upper-secondary education over quintiles**




*Note*: Countries are ranked in decreasing order by share of beneficiaries in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

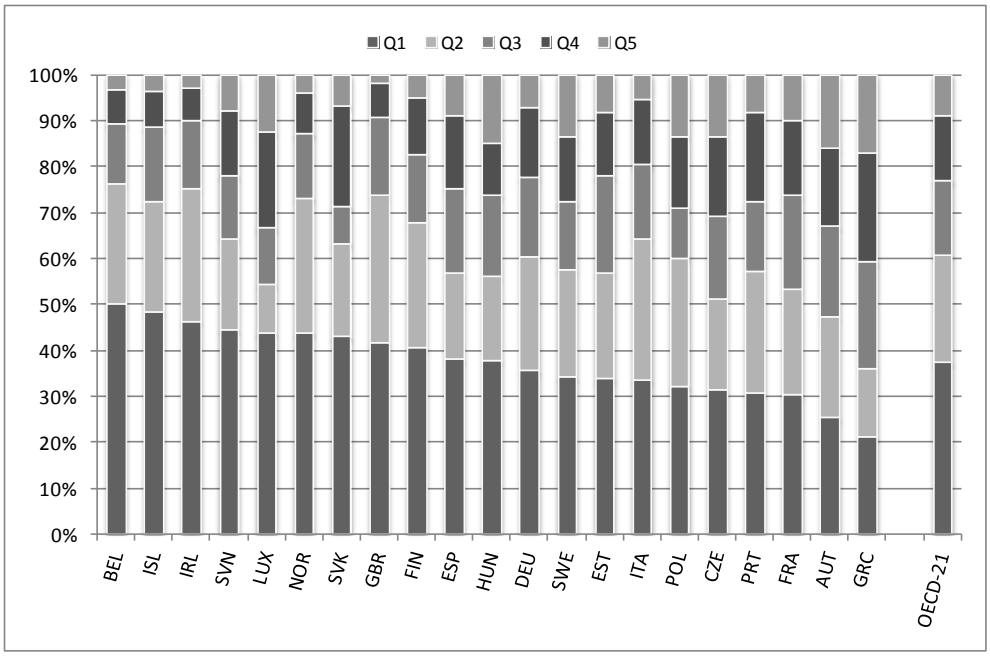
**Figure A. 3 Distribution of beneficiaries of tertiary education over quintiles**




*Note*: Countries are ranked in decreasing order by share of beneficiaries in the bottom quintile (Q1).

Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

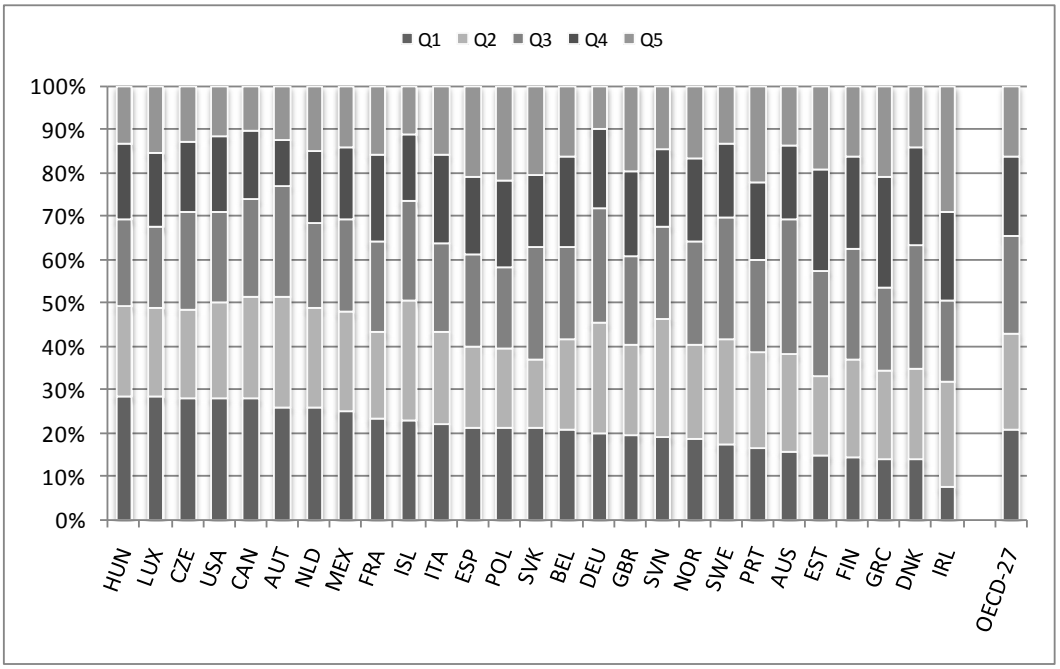
**Figure A. 4 : Distribution of beneficiaries of social housing over quintiles**




Note: Countries are ranked in decreasing order by share of beneficiaries in the bottom quintile (Q1).

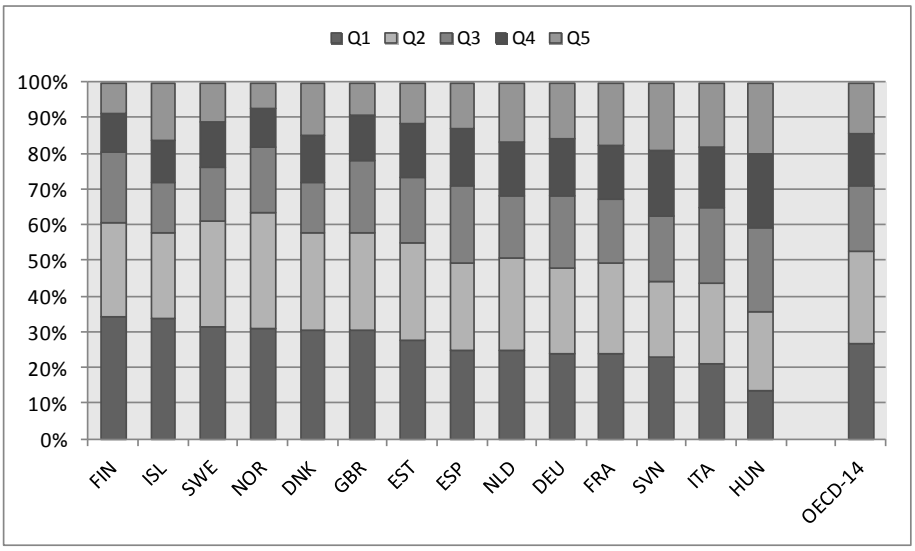
Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

**Figure A.5. Distribution of ECEC beneficiaries over income quintiles**




Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

**Figure A.6. Distribution of elderly care beneficiaries over income quintiles**




Source: OECD Secretariat's computations from OECD/EU database on the distributional impact of in-kind services and national survey data for non-EU countries.

## ANNEX 2: DATA SOURCES FOR ECEC AND LTC

**Data Sources for ECEC (see also Vaalavuo, 2011):**

| | |
|---|---|
| **Belgium** | Schoenmaekers D., Breda J., Ghysels J., Cantillon B., Debacker M., Wiercx J. (2006), *De overheidsuitgaven voor Vlaamse kinderen becijferd*, CSB-Berichten, Antwerpen. |
| **Denmark** | ***Clients in day-care institutions, day-care and school-care schemes by region, measure, ownership and age.***<br>Danmarks Statistikbank. http://www.statbank.dk/pas11 visited 21.1.2009<br>Personal communicaton with Helene Gjermansen, Danmarks Statistiks. |
| **Estonia** | Personal communication with Andra Reinomägi, Ministry of Social Affairs of Estonia. |
| **Finland** | Personal communication with Esa Arajärvi, National Institute for Health and Welfare. |
| **France** | ***Modes de garde et d'accueil des enfants de moins de 6ans en 2007 :***<br>Ananian, S. et Robert-Bobee, I. Études et Résultats. No. 678. Février 2009.<br>***L'Accueil de jeune enfant en 2005. Données Statistiques.***<br>CAF. Observatoire National de la Petite Enfance. |
| **Germany** | Personal communication with Ulrike Türk, Federal Statistical Office Germany. |
| **Hungary** | Eurostat: social protection data, spending on childcare.<br>***Infant Nurseries and Out of School.***<br>Hungarian Central Statistical Office.<br>http://portal.ksh.hu/pls/ksh/docs/eng/xstadat/xstadat_annual/i_fsg005a.html visited 1.6.2010 |
| **Iceland** | ***Children in pre-primary institutions by sex, age and regions 1998-2008.***<br>Statistics Iceland. http://www.statice.is/Statistics/Education/Pre-primary-institutions visited 16.1.2009<br>***Social protection expenditure.***<br>Statistics Iceland. http://www.statice.is/Statistics/Health,-social-affairs-and-justi/Social-protection-expenditure visited 16.1.2009 |
| **Italy** | ***Interventi e servizi sociali dei comuni singoli o associati.***<br>Istituto Nazionale di Statistica. http://www.istat.it/dati/dataset/20090817_00/ visited 5.4.2010 |
| **Luxembourg** | Personal contact with Frederic Berger, CEPS/INSTEAD |
| **Netherlands** | ***Key Figures 2004-2008. Education, Culture, Science.*** Ministry of Education, Culture and Science.<br>***Welzijnswerk en kinderopvang; exploitatie.*** Central Bureau voor de Statistiek.<br>http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=71469NED&D1=a&D2=0&D3=l&HD=090629-1250&HDR=G2,G1&STB=T visited 5.7.2009<br>***Welzijnswerk en kinderopvang; personeel en productie.*** Central Bureau voor de Statistiek.<br>http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=71470NED&D1=0,15-25&D2=0&D3=l&HD=090629-1249&HDR=G1,G2&STB=T visited 6.7.2009 |
| **Norway** | Personal communication with Erik Solum, Norwegian Ministry of Education and Research. |
| **Slovenia** | ***Expenditure for formal education in Slovenia, 2005-2007.***<br>Rapid report no 32. Statistical Office of the Republic of Slovenia. 2009.<br>**Kindergartens, Slovenia, School Year 2007/2008.**<br>Rapid report no 31. Statistical Office of the Republic of Slovenia. 2008. |
| **Sweden** | ***Pre-school activities and school-age child care - Resources - Expenditure.*** |

| | |
|---|---|
| | Skolverket. visited 19.12.2009, http://www.skolverket.se/sb/d/2008/a/10506;jsessionid=-E75FD4F022AE484B055F8F9DA52413CC#paragraphAnchor1<br>***Pre-school activities and school-age children.***<br>Skolverket. http://www.skolverket.se/content/1/c4/73/36/Tab1_1AEngwebb.xls visited 6.3.2009 |
| **United Kingdom** | Personal communication with Franziska Kohler, HM Treasury.<br>***Public Expenditure Statistical Analyses 2009***<br>HM Treasury. http://www.hm-treasury.gov.uk/pespub_pesa09.htm visited 14.4.2010<br>***Childcare and Early Years Survey 2007 - Parents' Use, Views and Experiences.***<br>Kazimirski, A., Smith, R., Butt, S., Ireland, E., Lloyd, E. National Centre for Social Research. 2008 |

**Data Sources for Elderly Long Term Care Services (see also Vaalavuo, 2011):**

| | |
|---|---|
| **Denmark** | ***Clients in nursing dwellings and dwellings for the elderly by region, age and type of measure.***<br>Danmarks Statistiksbank. http://www.statbank.dk/resi01 visited 7.6.2009<br>***Number of recipients of permanent home help by region, type of resident, type of benefits, age and scope.***<br>Danmarks Statistiksbank. http://www.statbank.dk/statbank5a/default.asp?w=1280 visited 9.4.2010<br>***Social expenditure by kind and purpose.***<br>Danmarks Statistiksbank. http://www.statbank.dk/statbank5a/default.asp?w=1280 visited 9.4.2010 |
| **Estonia** | Personal communication with Andra Reinomägi, Ministry of Social Affairs of Estonia, and with Marje Asper and Maria Oresina, Statistics Estonia. |
| **Finland** | ***Count of Regular Home-care Clients on 30 November 2008.***<br>National Institute for Health and Welfare.<br>http://www.stakes.fi/EN/tilastot/statisticsbytopic/socialservices/homecare.htm visited 6.2.2009<br>***Institutional Care and Housing Services in Social Care 2008.***<br>National Institute for Health and Welfare.<br>http://www.stakes.fi/FI/tilastot/aiheittain/Sosiaalipalvelut/laitosjaasumispalvelut.htm visited 6.2.2009<br>***Social Protection Expenditure and Financing 2007.***<br>National Institute for Health and Welfare.<br>http://www.stakes.fi/EN/tilastot/statisticsbytopic/socialservices/socialexpenditure/index.htm visited 6.2.2009 |
| **France** | ***Les résidents des établissements d'hébergement pour personnes âgés en 2007,*** Études et Résultats. n° 699 - août 2009<br>***L'offre en établissements d'hébergement pour personnes âgées en 2007,*** Études et Résultats. n° 689 - mai 2009<br>Institut de recherche et documentation en économie de la santé:<br>http://www.ecosante.fr/index2.php?base=FRAN&langh=FRA&langs=FRA visited 9.4.2010 |
| **Germany** | ***Long-term care.***<br>Bundesministeriumm für Gesundheit.<br>http://www.bmg.bund.de/cln_178/nn_1493786/EN/Pflege/pflege__node.html?__nnn=true visited 14.8.2009<br>OECD Social Expenditure Data. |
| **Hungary** | Personal communication with Andrea Bácskay, Hungarian Central Statistical Office.<br>OECD Social Expenditure Data. |
| **Iceland** | ***Municipal Social Services.***<br>Statistics Iceland. http://www.statice.is/Statistics/Health,-social-affairs-and-justi/Municipal-social-services visited 15.1.2009<br>***Social Protection Expenditure.***<br>Statistics Iceland. http://www.statice.is/Statistics/Health,-social-affairs-and-justi/Social-protection-expenditure visited 15.1.2009<br>***Occupants of retirement homes and nursing homes and wards by sex and age 1993-2008.*** |

| | |
|---|---|
| | Statistics Iceland. http://www.statice.is/Statistics/Health,-social-affairs-and-justi/Elderly visited 15.1.2009<br>***Daycare places for the elderly by region 1993-2008***<br>Statistics Iceland. http://www.statice.is/Statistics/Health,-social-affairs-and-justi/Elderly visited 15.1.2009<br>NOSOSCO (2008). |
| **Italy** | ***Interventi e servizi sociali dei comuni singoli o associati.***<br>Istituto Nazionale di Statistica. http://www.istat.it/dati/dataset/20090817_00/ visited 9.4.2010<br>***L'assistenza residenziale e socio-assistenziale in Italia.***<br>Istituto Nazionale di Statistica. http://www.istat.it/dati/dataset/20100211_00/ visited 9.4.2010 |
| **Netherlands** | ***AWBZ-zorg met verblijf; leeftijd en geslacht.***<br>***Zorgrekeningen; uitgaven en financiering.***<br>Central Bureau voor de Statistiek. http://statline.cbs.nl visited 5.7.2009 |
| **Norway** | Personal communication with Dag Abrahamsen, Statistics Norway.<br>***Residents in Dwellings for the Aged and Disabled***<br>Statistics Norway. http://www.ssb.no/pleie_en/arkiv/tab-2008-08-29-04-en.html visited 7.2.2009<br>***Residents in Institutions for the Aged and Disabled, by Age.***<br>Statistics Norway. http://www.ssb.no/pleie_en/arkiv/tab-2008-08-29-03-en.html visited 8.2.2009 |
| **Slovenia** | ***Rapid Reports No 1. 12 Social Protection.***<br>Statistical Office of the Republic of Slovenia. 20 January 2009.<br>Eurostat: Old Age In-Kind Benefits. |
| **Spain** | ***Servicíos Sociales para Personas Mayores en Espana, Enero 2006.***<br>Sancho Castiello *et al.* (2006) |
| **Sweden** | Personal communication with Kerstin Forssén, Statistics Sweden.<br>Personal communication with Anders Järleborg and Lennarth Johansson, National Board of Health and Welfare.<br>***Care and Services to Elderly Persons. Municipal Services.***<br>Statistics Sweden. http://www.scb.se/Pages/Product____10874.aspx visited 15.2.2009 |
| **United Kingdom** | ***Personal Social Services Expenditure and Unit Costs. England 2005-2006.*** The Information Centre, Adult Social Services Statistics. 2007.<br>***Community Care Statistics 2005. Home Care Services for Adults, England.*** The Information Centre, Adult Social Services Statistics. 31.3.2006<br>***Community Care Statistics 2005. Supported Residents (Adults), England.*** The Information Centre, Adult Social Services Statistics. 2005.<br>***Public Expenditure Statistical Analyses 2009.*** HM Treasury. http://www.hm-treasury.gov.uk/pespub_pesa09.htm visited 9.4.2010 |

## REFERENCES

Aaberge, R. and A. Langørgen (2006), "Measuring the Benefits from Public Services: The Effects of Local Government Spending on the Distribution of Income in Norway", *Review of Income and Wealth*, 52(1), pp.61-83.

Aaberge, R., M. Bhuller, A. Langørgen, M. Mogstad (2010a), "The Distributional Impact of Public Services when Needs Differ", *Journal of Public Economics*, 94, pp.549-562.

Aaberge, R., A. Langørgen, P. Lindgren (2010b), "The Impact of Basic Public Services on the Distribution of Income in European Countries", paper presented at Net-SILC conference , Warsaw March 2010.

Adema, W., M. Ladaique (2009) *How Expensive Is the Welfare State? Gross and Net Indicators in the OECD Social Expenditure Database (SOCX).* OECD Social, Employment and Migration Working Papers No 92. Paris: OECD Publishing.

Ananian, S. and I. Robert-Bobée (2009) Modes de garde et d'Accueil des Enfants de Moins de 6 Ans en 2007. *Études et Résultats*. No. 678. Février 2009.

Andrews, D., A., Caldera-Sánchez, A. Johansson, (2011), "Housing Markets and Structural Policies in OECD countries", *OECD Economics Department Working Papers*, N° 836, OECD.

Antoninis, M. and P. Tsakloglou (2001), "Who Benefits from Public Education in Greece? Evidence and Policy Implications", *Education Economics*, Vol. 9(2), pp.197-222.

Asensio, J., A. Matas and J.L. Raymond (2003), 'Redistributive Effects of Subsidies to Urban Public Transport in Spain', *Transport Reviews*, 23(4), pp. 433-452.

Berloffa, G., A. Brugiavini and D. Rizzi (2006), "Health, Welfare and Inequality", University Ca'Foscari of Venice, *Dept. of Economics Research Paper Series* No. 41/06.

Blackorby, C., D. Donaldson (1993), "Household Equivalence Scales and Welfare Comparisons: A Comment", *Journal of Public Economics*, 50(1), pp.143-146.

Busse, R., C. Krauth, F.W. Schwartz (2002) "Use of acute hospital beds does not increase as the population ages: results from a seven year cohort study in Germany", *Journal of Epidemiology and Community Health*, 56, pp.289-293.

Callan, T., T. Smeeding and P. Tsakloglou (2008) "Short-run distributional effects of public education transfers to tertiary education students in seven European countries", *Education Economics*, vol.16 (3), pp.275-288.

Carruthers, R., M. Dick and A. Saurkar (2005), *Affordability of Public Transport in Developing Countries*, Transport Papers 3, World Bank

Comas-Herrera, A., R. Wittenberg, , J. Costa-Fonti, , C. Gori, , A. Di Maio, C Patxot, L. Pickard, A. Pozzi, H. Rothgang (2006) Future Long-term Care Expenditure in Germany, Spain, Italy, and the United Kingdom. *Ageing & Society.* 26: 285–302.

Da Roit, B., B. Le Bihan, A. Österle (2007) Long-term Care Policies in Italy, Austria and France: Variations in Cash-for-Care Schemes. *Social Policy & Administration.* 41(6): 653–671.

Estupiñán N., A. Gómez-Lobo, Muñoz-Raskin, T. Serebrisky (2007), *Affordability and Subsidies in Public Urban Transport. What do we mean? What can be done?,* Policy research WP 4440, World Bank.

EUROFOUND (2006), *Employment in Social Care in Europe*. European Foundation for the Improvement of Living and Working Conditions. Luxembourg: Office for Official Publications of the European Communities.

European Commission (2006), The Impact of Ageing on Public Expenditure: Projections for the EU25 Member States on Pensions, Health Care, Long- Term Care, Education and Unemployment Transfers (2004-2050).

European Commission and Economic Policy Committee (2009), *2009 Ageing Report: Economic and Budgetary Projections for the EU-27 Member States (2008-2060)*, European Economy, No. 2/2009.

Evandrou, M., J. Falkingham, J. Hills and J. Le Grand (1993), "Welfare Benefits in Kind and Income Distribution", *Fiscal Studies*, 14 (1).

Fearnley, N., 2006, 'Public transport subsidies in the UK: evidence of distributional effects', *World Transport Policy & Practice* 12 (1), pp.30-39.

Förster, M. and G. Verbist (2012, forthcoming), "Money or Kindergarten – What Is the Optimal Mix? A Comparative Analysis of the Distributive Effects of Family Cash Transfers and Childcare Services", OECD Social, Employment and Migration Working Papers.

Frick, J.R. and M.M. Grabka (2003), "Imputed Rent and Income Inequality: A Decomposition Analysis for the U.K., West Germany, and the USA", *Review of Income and Wealth* 49, pp. 513-537.

Frick, J.R., J. Goebel and M.M. Grabka (2006), "Assessing the distributional impact of 'imputed rent' and 'non-cash employee income' in micro data: Case study based on EU-SILC (2004) and SOEP (2002)". Paper presented at the International Conference: "Comparative EU-Statistics on Income and Living Conditions: issues and challenges", Helsinki, 6-8 November 2006.

Frick, J.R., M.M. Grabka, T. Smeeding and P. Tsakloglou (2010), "Distributional effects of imputed rents in five European countries", *Journal of Housing Economics* 19, Nr. 3, 167-179.

Gardiner, K., J. Hills, V. Lechene and H. Sutherland (1995), *The Effects of Differences in Housing and Health Care Systems on International Comparisons of Income Distribution*, STICERD, WSP/110.

Garfinkel, I., L. Rainwater and T. Smeeding (2006), "A Re-examination of Welfare State and Inequality in Rich Nations: How In-Kind Transfers and Indirect Taxes Change the Story", *Journal of Policy Analysis and Management* 25, pp. 855-919.

Hernández-Quevado, C., A.M. Jones, A. López-Nicolás and N. Rice (2006), "Socio-economic Inequalities in Health: A Comparative Longitudinal Analysis Using the European Community Household Panel", *Social Science & Medecine.* 63(5), pp. 1246 – 1261.

Huber, M., R.Rodrigues, F.Hoffmann, K. Gasior, B. Marin (2009) *Facts and Figures on Long-Term Care. Europe and North America.* Vienna: European Centre for Social Welfare Policy and Research.

Jensen, C. (2008) "Worlds of Welfare Services and Transfers", *Journal of European Social Policy.* 18 (2), pp.151–162.

Jones F. (2008), *The effect of taxes and benefits on household income, 2006-2007*, Office of National Statistics.

Jones, A. and O. O'Donell (1995), "Equivalence Scales and the Cost of Disability", *Journal of Public Economics*, 56, pp. 273-289.

Marical, F., M. Mira d'Ercole, M. Vaalavuo and G. Verbist (2006), "Publicly-provided Services and the Distribution of Resources", *OECD Social, Employment and Migration Working Papers*, OECD, Paris.

Marical, F., M. Mira d'Ercole, M. Vaalavuo & G. Verbist (2008), "Publicly Provided Services: How Do they Change the Distribution of Households' Economics Resources?", *Growing Unequal? Income Distribution and Poverty in OECD Countries*, Paris, OECD, pp.223-251.

Matsaganis, M. and G. Verbist (2009), "Distributional Effects of Publicly Funded Childcare", in Ward, T., Lelkes O., Sutherland H. & Toth, I. (eds.), *European Inequalities. Social Inclusion and Income Distribution in the European Union*, Budapest, Tarki, pp. 177-185

Miranda, V. (2011), *Cooking, Caring and Volunteering: Unpaid Work Around the World*, OECD Social, Employment and Migration Working Papers 116.

MISSOC Secretariat (2009) *MISSOC Analysis 2009. Long-Term Care.* August 2009.

Nolan B. and H. Russell (2001), *Non-cash Benefits and Poverty in Ireland*, Policy Research Series, ESRI.

Nososco (2008) Social Protection in the Nordic Countries 2006/2007. Scope, Expenditure, Financing. Copenhagen: Nordic Social-Statistical Committee.

OECD (2005a), *What are Equivalence Scales?*, OECD Social Policy Division, http://www.oecd.org/els/social.

OECD (2005b) *Long-term Care for Older People*. The OECD Health Project. Paris: OECD.

OECD (2006), "Projecting OECD Health and Long-term Care Expenditures: What are the Main Drivers?", *OECD Economic Department Working Papers.* No. 477, Paris, OECD.

OECD (2007), *Benefits and Wages*. Paris: OECD.

OECD (2008a), *Growing Unequal? Income Distribution and Poverty in OECD Countries*, Paris, OECD.

OECD (2008b), *Education at a Glance 2008*, Paris, OECD.

OECD (2008c), *Health at a Glance 2008*, Paris, OECD.

OECD (2010), *Education at a Glance 2010*, Paris, OECD.

OECD (2011a), *Doing Better for Families*. Paris, OECD.

OECD (2011b), *Help Wanted?Providing and Paying for Long-Term Care.* Paris, OECD.

OECD (2011c), *Divided we Stand – Why inequality keeps rising*, Paris, OECD.

Österle, A. (2002) Equity Choices and Long-Term Care Policies in Europe. Allocating Resources and Burdens in Austria, Italy, the Netherlands and the United Kingdom. Aldershot: Ashgate.

Parry, I. and K. Small (2009), "Should Urban Transit Subsidies be Reduced?", *American Economic Review*, 99(3), pp.700-724.

Paulus, A., H. Sutherland, P. Tsakloglou (2010), "The Distributional Impact of In-Kind Public Benefits in European Countries", *Journal of Policy Analysis and Management*, 29(2), pp. 243-266.

Pavolini, E., C. Ranci (2008) Restructuring the Welfare State: Reforms in Long-Term Care in Western European Countries. *Journal of European Social Policy*. 18(3): 246–259.

Radner, D. (1997), "Non-cash Income, Equivalence Scales and the Measurement of Economic Well-being", *Review of Income and Wealth.* 43(1), pp.71-88.

Sancho Castiello, M., M. De La Pezuela Pinto, M. Fernández Moreno (2006) Servicíos Sociales para Personas Mayores en Espana, Enero 2006. Chapter 7 in *Tomo I. Informe 2006. Las Personas Mayores en Espana. Datos Estadísticos Estatales y por Comunidades Autónomas.* Coleccíon Estudios. Serie Documentos Estadísticos No. 22008. Madrid: Ministerio de trabajo y Asuntos Sociales.

Saunders, P. and P. Siminski (2005) "Homeownership and inequality: imputed rent and income distribution in Australia", SPCR Discussion paper 144, September.

Sefton, T. (2002), "Recent Changes in the Distribution of the Social Wage", *CASE paper 62*, London School of Economics, London.

Smeeding, T.M. (1982) "Alternative Methods for Valuing Selected In-Kind Transfer Benefits and Measuring Their Effect on Poverty", *U.S. Bureau of Census Technical Paper* No. 50. Washington, DC: U.S. Government Printing Office.

Smeeding T., P. Tsakloglou and G. Verbist (2008) "Distributional Effects of Public Health Care Transfers in Seven European Countries", AIM-AP report, University of Essex.

Smeeding, T., *et al.* (1993), "Poverty, inequality, and family living standards impact across seven nations: the effect of noncash subsidies for health, education and housing", *Review of Income and Wealth.* 39(3), pp.229-256.

Sutherland, H. and P. Tsakloglou (2009), "Accounting for the Distributional Effects of in-kind Public Benefits", paper presented at the Joint OECD/University of Maryland International Conference "Poverty, Income Inequality and Social Exclusion, lessons from Europe", 16-17 March 2009.

Tsakloglou, P., *et al.* (2009), "Distributional Effects of Non-cash Incomes in Seven European Countries", AIM-AP report, University of Essex.

Vaalavuo, M. (2010), "The Impact of Public Services on Inequality in Income Distribution in the Nordic Welfare States", paper presented at FISS Research Seminar on "Issues in Social Security", Sigtuna, Sweden, 16-18 June 2009.

Vaalavuo, M. (2011), *Towards an Improved Measure of Income Inequality. The Impact of Public Services in Income Distribution. An International Comparison*, PhD Thesis. European University Institute, Florence, Italy.

Whitehead , C. and K. Scanlon (2007), *Social Housing in Europe*, LSE London.

WHO (2008) WHO Home Care in Europe. Solid facts.

Zaidi, A. and T. Burchardt (2009), "Estimating the Extra Costs of Living for Disabled People in the EU", paper presented at the Joint OECD/University of Maryland International Conference "Poverty, Income Ineuality and Social Exclusion, lessons from Europe", 16-17 March 2009.

**OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS**

Most recent releases are:

No. 131 *ELIGIBILITY CRITERIA FOR UNEMPLOYMENT BENEFITS* Danielle Venn (2012)

No. 127 *THE LABOUR MARKET INTEGRATION OF IMMIGRANTS AND THEIR CHILDREN IN AUSTRIA* Karolin Krause and Thomas Liebig (2011)

No. 126 *ARE RECENT IMMIGRANTS DIFFERENT? A NEW PROFILE OF IMMIGRANTS IN THE OECD BASED ON DIOC 2005/06* Sarah Widmaier and Jean-Christophe Dumont (2011)

No. 125 *EARNINGS VOLATILITY AND ITS CONSEQUENCES FOR HOUSEHOLDS* Danielle Venn (2011)

No. 124 *CRISIS, RECESSION AND THE WELFARE STATE* Willem Adema, Pauline Fron and Maxime Ladaique (2011)

No. 123 *AGGREGATE EARNINGS AND MACROECONOMIC SHOCKS* Andrea Bassanini (2011)

No. 122 *REDISTRIBUTION POLICY AND INEQUALITY REDUCTION IN OECD COUNTRIES: WHAT HAS CHANGED IN TWO DECADES?* Herwig Immervoll, Linda Richardson (2011)

No. 121 *OVER-QUALIFIED OR UNDER-SKILLED* Glenda Quintini (2011)

No. 120 *RIGHT FOR THE JOB* Glenda Quintini (2011)

No.119 *THE LABOUR MARKET EFFECTS OF UNEMPLOYMENT COMPENSATION IN BRAZIL* Alexander Hijzen (2011)

No. 118 *EARLY MATERNAL EMPLOYMENT AND CHILD DEVELOPMENT IN FIVE OECD COUNTRIES* Maria del Carmen Huerta, Willem Adema, Jennifer Baxter, Miles Corak, Mette Deding, Matthew C. Gray, Wen-Jui Han, Jane Waldfogel (2011)

No. 117 *WHAT DRIVES INFLOWS INTO DISABILITY?EVIDENCE FROM THREE OECD COUNTRIES* Ana Llena-Nozal and Theodora Xenogiani (2011)

No. 116 *COOKING, CARING AND VOLUNTEERING: UNPAID WORK AROUND THE WORLD* Veerle Miranda (2011)

No. 115 *THE ROLE OF SHORT-TIME WORK SCHEMES DURING THE 2008-09 RECESSION* Alexander Hijzen and Danielle Venn (2010)

No. 114 *INTERNATIONAL MIGRANTS IN DEVELOPED, EMERGING AND DEVELOPING COUNTRIES: AN EXTENDED PROFILE* Jean-Christophe Dumont, Gilles Spielvogel and Sarah Widmaier (2010)

No. 113 *ACTIVATION POLICIES IN JAPAN* Nicola Duell, David Grubb, Shruti Singh and Peter Tergeist (2010)

No. 112 *ACTIVATION POLICIES IN SWITZERLAND* Nicola Duell and Peter Tergeist with contributions from Ursula Bazant and Sylvie Cimper (2010)

No. 111 *ECONOMIC DETERMINANTS AND CONSEQUENCES OF CHILD MALTREATMENT* Lawrence M. Berger, Jane Waldfogel (forthcoming)

No. 110 *DISTRIBUTIONAL CONSEQUENCES OF LABOR DEMAND ADJUSTMENTS TO A DOWNTURN: A MODEL-BASED APPROACH WITH APPLICATION TO GERMANY 2008-09* Herwig Immervoll, Olivier Bargain, Andreas Peichl, Sebastian Siegloch (2010)

No. 109 *DECOMPOSING NOTIONAL DEFINED-CONTRIBUTION PENSIONS: EXPERIENCE OF OECD COUNTRIES' REFORMS* Edward Whitehouse (2010)

No. 108 *EARNINGS OF MEN AND WOMEN WORKING IN THE PRIVATE SECTOR: ENRICHED DATA FOR PENSIONS AND TAX-BENEFIT MODELING*
Anna Cristina D'Addio and Herwig Immervoll (2010)

No. 107 *INSTITUTIONAL DETERMINANTS OF WORKER FLOWS: A CROSS-COUNTRY/CROSS-INDUSTRY APPROACH*
Andrea Bassanini, Andrea Garnero, Pascal Marianna, Sebastien Martin (2010)

No. 106 *RISING YOUTH UNEMPLOYMENT DURING THE CRISIS: HOW TO PREVENT NEGATIVE LONG-TERM CONSEQUENCES ON A GENERATION?*
Stefano Scarpetta, Anne Sonnet and Thomas Manfredi (2010)

No. 105 *TRENDS IN PENSION ELIGIBILITY AGES AND LIVE EXPECTANCY, 1950-2050*
Rafal Chomik and Edward Whitehouse (2010)

No. 104 *ISRAELI CHILD POLICY AND OUTCOMES*
John Gal, Mimi Ajzenstadt, Asher Ben-Arieh, Roni Holler and Nadine Zielinsky (2010)

No. 103 *REFORMING POLICIES ON FOREIGN WORKERS IN ISRAEL*
Adriana Kemp (2010)

No. 102 *LABOUR MARKET AND SOCIO-ECONOMIC OUTCOMES OF THE ARAB-ISRAELI POPULATION*
Jack Habib, Judith King, Asaf Ben Shoham, Abraham Wolde-Tsadick and Karen Lasky (2010)

No. 101 *TRENDS IN SOUTH AFRICAN INCOME DISTRIBUTION AND POVERTY SINCE THE FALL OF APARTHEID*
Murray Leibbrandt, Ingrid Woolard, Arden Finn and Jonathan Argent (2010)

No. 100 *MINIMUM-INCOME BENEFITS IN OECD COUNTRIES: POLICY DESIGN, EFFECTIVENESS AND CHALLENGES*
Herwig Immervoll (2009)

No. 99 *HAPPINESS AND AGE CYCLES – RETURN TO START…? ON THE FUNCTIONAL RELATIONSHIP BETWEEN SUBJECTIVE WELL-BEING AND AGE*
Justina A.V. Fischer (2009)

No. 98 *ACTIVATION POLICIES IN FINLAND*
Nicola Duell, David Grubb and Shruti Singh (2009)

No. 97 *CHILDREN OF IMMIGRANTS IN THE LABOUR MARKETS OF EU AND OECD COUNTRIES: AN OVERVIEW*
Thomas Liebig and Sarah Widmaier (2009)

A full list of Social, Employment and Migration Working Papers is available at *www.oecd.org/els/workingpapers*.

Other series of working papers available from the OECD include: *OECD Health Working Papers*.

**RECENT RELATED OECD PUBLICATIONS:**

*DIVIDED WE STAND: Why Inequality Keeps Rising (2011),* www.oecd.org/els/social/inequality

*EQUAL OPPORTUNITIES? The Labour Market Integration of the Children of Immigrants* (2010), *via* OECD Bookshop

*OECD REVIEWS OF LABOUR MARKET AND SOCIAL POLICIES: ESTONIA* (2010), www.oecd.org/els/estonia2010

*JOBS FOR YOUTH: GREECE* (2010), www.oecd.org/employment/youth

*JOBS FOR YOUTH: DENMARK* (2010), www.oecd.org/employment/youth

*OECD REVIEWS OF LABOUR MARKET AND SOCIAL POLICIES: ISRAEL* (2010), www.oecd.org/els/israel2010

*JOBS FOR YOUTH: UNITED STATES* (2009), www.oecd.org/employment/youth

*JOBS FOR YOUTH: POLAND* (2009), www.oecd.org/employment/youth

*OECD EMPLOYMENT OUTLOOK: Tackling the Jobs Crisis* (2009), www.oecd.org/els/employment/outlook

*DOING BETTER FOR CHILDREN* (2009), www.oecd.org/els/social/childwellbeing

*SOCIETY AT A GLANCE – ASIA/PACIFIC EDITION* (2009), www.oecd.org/els/social/indicators/asia

*OECD REVIEWS OF LABOUR MARKET AND SOCIAL POLICIES: SLOVENIA* (2009), www.oecd.org/els/slovenia2009

*INTERNATIONAL MIGRATION OUTLOOK: SOPEMI* (2010) www.oecd.org/els/migration/imo

*PENSIONS AT A GLANCE 2009: Retirement-Income Systems in OECD Countries* (2009), www.oecd.org/els/social/pensions/PAG

*JOBS FOR YOUTH: FRANCE* (2009), www.oecd.org/employment/youth

*SOCIETY AT A GLANCE 2009 – OECD Social Indicators* (2009), www.oecd.org/els/social/indicators/SAG

*JOBS FOR YOUTH: AUSTRALIA* (2009), www.oecd.org/employment/youth

*OECD REVIEWS OF LABOUR MARKET AND SOCIAL POLICIES: CHILE* (2009), www.oecd.org/els/chile2009

*PENSIONS AT A GLANCE – SPECIAL EDITION: ASIA/PACIFIC* (2009), www.oecd.org/els/social/pensions/PAG

*SICKNESS, DISABILITY AND WORK: BREAKING THE BARRIERS (VOL. 3) – DENMARK, FINLAND, IRELAND AND THE NETHERLANDS* (2008), www.oecd.org/els/disability

*GROWING UNEQUAL? Income Distribution and Poverty in OECD Countries* (2008), www.oecd.org/els/social/inequality

*JOBS FOR YOUTH: JAPAN* (2008), www.oecd.org/employment/youth

*JOBS FOR YOUTH: NORWAY* (2008), www.oecd.org/employment/youth

*JOBS FOR YOUTH: UNITED KINGDOM* (2008), www.oecd.org/employment/youth

*JOBS FOR YOUTH: CANADA* (2008), www.oecd.org/employment/youth

*JOBS FOR YOUTH: NEW ZEALAND* (2008), www.oecd.org/employment/youth

*JOBS FOR YOUTH: NETHERLANDS* (2008), www.oecd.org/employment/youth

For a full list, consult the OECD online Bookshop at www.oecd.org/bookshop.