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Applying child-based information to a microsimulation model

A better tool to assess outcomes of alternative entitlements to child care provisions?

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Abstract¹

The Finnish child day care system has had two alternative public provisions in the mid-1980s after the parental leave period: a subjective right to public child day care or cash for care (child home care allowance) until the child is 3 years of age. The elderly siblings of the youngest child, if cared for at home, are entitled to a smaller siblings' allowance until they start obligatory education. The right to child day care concerns all children before obligatory education (7 years of age). The forms of public support for child care have continuously been in public debate, some people demanding a longer period and higher allowance for the parents (mothers) to care for a child at home after the parental leave whereas others demand a longer parental leave and greater gender equality in child care. In spring 2012 the controversy concerned the Government's plan to cut the home care allowance period by one year, for children below 2 years of age. Cutting public transfer expenditure was one justification, the other being increasing mothers' labour market participation. That plan was never introduced but halving the allowance period between the parents has been suggested by the Government in 2013. In spite of high-tempered public discussion very few calculations about potential outcomes have been presented. Also the current static microsimulation models seemed not very useful in capturing the scope of even immediate impacts of these kinds of reforms.

This paper has two motivations. The first motivation was a lack of micro-macro level analyses of potential outcomes of a possible reform. Cutting home care allowance decreases cash for care costs, but may increase child day care costs, if the mothers are available to the labour market earlier than before. The second motivation is a wish to apply and develop a microsimulation model with new kind of data in preparation of different child care alternatives. The problem in the former models and data is a lack of child-based information about their actual care periods. This is the first attempt to utilize child based spell data of child home care allowance. As application the paper will present preliminary potential outcomes of cutting entitlements to child home care allowance by one year and discusses the strengths and limitations of the applied model and data.

¹ Former versions of this paper were presented at 10 years of ESPAnet – The Anniversary Conference, September 6–8, 2012, University of Edinburgh (Stream 9: The Impact of the Crises on Welfare Systems: A new role for Families?) and in the European Meeting of the IMA (International Microsimulation Association), May 17–19, 2012, Teagasc Dublin.

1 Introduction

Family leave policies help parents combine child care and paid work. These policies measure for their part the level of decommodification, the possibility of economic independence from the market when small children need care, in the welfare states. These policies offer, first, a shorter or longer leave of absence from work with the right to return to the former job. Income maintenance during the leaves is guaranteed either by earnings-related parental leave benefits or by flat-rate or means-tested benefits and allowances which do not necessitate work history and former earnings. Secondly, the welfare state can provide affordable child day care and early childhood education and encourage the parents to enter the labour market after child care periods.

The traditional order of child care provisions in the Nordic countries has started from parental leave provisions around the birth of the child and followed by an option of publicly organised child care services. Nowadays most Nordic welfare states offer also cash for care schemes after parental leave as an alternative to public child day care (Gislason and Eydal 2011; Sipilä et al. 2012). Thus, using the concepts of commodification and decommodification, when child care is the policy topic, welfare states can simultaneously offer incentives and provisions both for more commodification, i.e. possibilities to enter the labour market, and for more decommodification, i.e. possibilities to leave the labour market with cash for care benefits.

Caring for children is very gender-segregated, indicating that both kinds of provisions, cash for care and services, concern more women and mothers than men and fathers. Also the meaning of the concepts of (de)commodification is gender-segregated. Some feminist scholars have posed the problem of using the degree of decommodification, as presented by Esping-Andersen in 1990, as a measure for the welfare state from a gender perspective: women have to first become commodified, in order to be able to become decommodified, i.e. entitled to welfare benefits which necessitate work history. Thus women become economically independent from their spouses and the market first *through* wage labour, while men become independent from the market directly *from* wage labour (Nyberg 2002, 73). However, universal cash for care schemes suggest that decommodification is possible for caring women without entering the labour market at all. An interesting question is whether recommodification policies, which have emerged due to economic crises of welfare states, concern also caring mothers as they concern the unemployed, those who plan early retirement, or who are only partially disabled, and, as a rule, persons who could work more and longer.

Finland is one of those countries which have chosen to offer a cash for care scheme as an alternative for publicly provided child day care services in the mid-1980s. The alternatives, either a subjective

right to publicly organised child day care or cash for care benefits (child home care allowance, CHCA) for children less than 3 years of age have been fully in force since 1990. In the public debate the child home care allowance in Finland is a very sensitive issue with which no politician would like to interfere, and suggestions for any cuts is argued to mean political suicide (Hiilamo and Kangas 2009; Sipilä et al. 2012). The defenders of the child home care allowance invoke strong sensibilities, like what is best for the children or good motherhood. Child home carers also argue that they save public money when they do not claim more expensive places in child day care².

However, recent economic crises have brought pressure to start discussing the negative sides of child home care allowance and its negative impact on both women's labour supply and gender segregation between paid and unpaid child care. In spring 2012 the biggest newspaper in Finland (Helsingin Sanomat 2012) published news which, based on unofficial rumours from sources close to the Government, claimed that the Government is planning cost cuts for the child home care allowance schemes: the right to allowance would cover only those under 2 years of age (and their siblings) instead of the current age limit of 3 years. Even though the news was a rumour, it led to large public debate and even to a motion of censure in Parliament from the opposition (the Centre party as mover). The outcome was that the Government (the Coalition party heading the Cabinet with the Social Democrats and 4 other small parties) had no such plans going on, but some other reforms were said to be under way, such as extending fathers' individual rights to parental leave and preparing more flexibility between care and work. The current systems in Finland are very inflexible on/off models, i.e. full-time work or full-time leave with only small possibility of part-time³.

One of the main motivations of this paper originates from the debate mentioned above. It was recognized how little relevant empirical information was put on the table and available for the public debate concerning the situation of mothers, families, on the one hand, and, on the other hand, public costs. No calculations were presented by the opposition or the Government about, for example: 1) what the potential public gross and net savings would be if the costs of child home care allowance decrease but the costs of child day care services potentially increase, 2) how many mothers on allowance have a work place to return to or do they have to start to look for work as unemployed job seekers, 3) how many parents and children would be affected, 4) if more mothers return to/enter the

2 For the municipalities it seems, indeed, much cheaper in the short run to pay child home care allowance and even local supplements on top of statutory allowance in order to keep down the demand for child care services. At the same time local policies contradict state level policies to increase employment and gender equality in child care (Haataja and Pylkkänen 2009). It is important to notice that parental leave benefits are financed by the State (health insurance scheme) and both child day care services and child home care allowance by the municipalities.

3 In autumn 2012 the Ministry of Social Affairs and Health appointed a tripartite working group to draft a proposal on how to better combine part-time work and partial child home care allowance in order to increase parents' (in practice women's) earlier return to labour market via part-time work instead of long full-time absence from work (STM 2013). The Government's proposal lead to a reform of partial child home care allowance for part-time employees from the beginning of 2014. Furthermore, the idea of cutting child home care allowance by one year was never introduced, but in August 2013 the Government published a long-term development programme for structural policy. One of its suggestions was to split the right to the child home care allowance half-and-half between the parents (Valtioneuvosto 2013). This proposal is under further preparation in the Ministry of Social Affairs and Health.

labour market earlier, how would that effect on tax revenues. The aim of this paper is to deal with and analyse these questions further.

One reason why empirical calculations about potential effects of cutting the CHCA were not presented is the lack of empirical data which combine information about care solutions at the micro-level (children's, parents' and families' perspective) and the macro-level (public costs, child day care places, etc.). This paper is the first attempt to apply the potentials of a microsimulation method to analysing the current combinations of care solutions as well as potential outcomes of alternative choices for developing child day care. The alternative chosen to be analysed is to cut the child home care allowance from the children at two years of age. The main questions are the potential public costs and savings and how much these reforms would increase or decrease mothers' potential labour supply and demand for public child day care.

The content of the paper is as follow: the second chapter gives some more detailed information about the data and method we use. The third chapter discusses the child day care issue in Finland and the fourth chapter describes the present situation. Chapters 5 and 6 describe present current beneficiaries and outcomes of cutting the CHCA-scheme from the children 2 years of age from children's and parents' perspective. Chapters 7 and 8 summarize the results and discuss further work.

2 Investing in cash for care or child day care services – debate in Finland

When looking back to the 1960s and 1970s it was internationally recognized that Finnish women, including mothers, were extensively integrated into the labour market. Women's labour force participation rates were among the highest in the ILO countries. Furthermore, women with or without children have been working full-time and not part-time as women commonly do in many countries even today (Report of the Committee 1970: A8; Datta Gupta et al. 2006). Women's high integration into the labour market can partially be explained by the high share of agrarian population and as an outcome of the internationally relatively rapid and short period of the structural change which took place in 1950–1970/1980⁴. In 1961 the employment rate of mothers with youngest child below 3 years of age varied 37–46% in densely populated areas compared with 64–70% in the countryside, where mothers were often working as housewives on the farms (Ristimäki 1962). The compensated maternity leave scheme was not introduced until 1964 and child day care services were focused only

⁴ Female spouses of farmers were counted as economic active population and in the labour force, unlike in many other countries. The internationally relatively rapid and short period of structural change took place in 1950–1970/1980. The share of primary production in GDP decreased from 26 to 13 per cent, and the share of employed in primary production from 46 per cent to 24 per cent between 1950–1970, and to 17 per cent in 1980. Corresponding changes took place in other Nordic countries in 50 to 80 years. (Statistics Finland 1955; Välimäki 1999.)

on poor working families. The structural change was rapid and expensive, and women's earnings were needed for financing families' high living costs, especially housing. The enlarging welfare state needed more labour, and increasingly also educated women. These developments for their part played an important role in starting to build up policies to help combining family and work.

Since the 1960s political parties and women's and gender equality movements took part in the debate concerning the child care issue. Roughly described, the left-wing parties claimed publicly financed good quality child day care services and the Centre (former Agrarian) Party and most right-wing parties compensation for the families who would not use these services or who wanted to care for children at home (Report of the Committee 1970: A8; Mikkola 1991; Sipilä and Korpinen 1998). The promoters of child day care services won the first round when the Act on Child Day Care was introduced in 1973. At the same time Parliament accepted a resolution that the Government will start looking for alternative solutions and experiments for child home care schemes. Maternity leave was extended the following year (1974) from only 9 weeks up to 6 months. Fathers' rights to care started to be improved since the late 1970s.

Contradictions between the supporters of child day care and child home care heated up again in the 1980s. The supply of child day care places lagged far behind the demand and mothers' employment rates approached 70–90 percent. A political compromise took place in 1984 and two alternatives were introduced: a) a subjective right for children below 3 years of age to get a child day care place or b) child home care allowance paid to the parents. These acts came fully into force in 1990. The subjective right of children to a child day care place was extended to all children under obligatory school age in 1996. In 1998 child care fees were regulated with ceilings at a national level and cash for private care was introduced. (Forssén 1998; Bergqvist et al. 1999; Haataja 2004).

In the 2000s, it is obvious that some kind of temporary stay-at-home mother culture has re-entered Finnish society. One consequence of that can be that before national elections demands to change individual taxation to joint taxation have become general since the late 1990s (Haataja and Pylkkänen 2009). On the other hand, discourse about gender equality and (young) women's weakened situation in the labour market is critical against the pressure for long home care periods, and demands for improvements in parental leave schemes and child day care services have increased.

During the last 20–25 years many things in the society and economy have changed. The length of the maternity/parental leave period, however, has experienced only minor changes since the 1980s. The changes concern in practice fathers' rights to lengthen the care period by a month (Gíslason and Eydal 2011). The child is still about 9–10 months of age after the parental leave period and child

home care allowance is commonly used after parental leave for some period. The share of children in public child day care in Finland is one of the lowest among European countries (OECD 2006, 77). Mothers' employment rate, when having young children, has also dropped compared to the turn of the 1990s. The employment rate of mothers with youngest child under 6 years of age increased from 48% to 59% in 20 OECD countries on average, but dropped from 64% to 49% in Finland (OECD 2005, 41; Haataja and Nyberg 2006). Finnish mothers, however, return to the labour market after care periods even later than they used to a couple of decades ago, and their employment rates increase up to 80 percent when the youngest child turns 3 years of age (Statistics Finland 2012). That share is one of the highest in the world.

3 The current child care schemes

Child home care allowance is available after the parental leave period, when the child is 9–10 months of age, if the child is not in publicly organized child day care. The parents can also choose a private child day care place and claim the private care allowance to the carer. It is very rare in Finland that children under the age of one are taken into child day care. Nearly 90 percent of families, at some point during the period between the end of parental leave and the child's 3rd birthday or the birth of another child, use child home care allowance (Kela 2011). The median period at home for mothers after the first child is about 19 months, and nearly 30 percent of mothers use leaves, parental and child home care, 3 years or longer because of a new child (Haataja and Hämäläinen 2010 and 2011).

The parental leave scheme is financed by the state (health insurance) and child day care services, private care allowance and child home care allowance are financed by the municipalities. The Social Insurance Institution (Kela) pays out the allowances, compiles the statistics and collects the costs from the municipalities. The shorter the parental leave the earlier municipalities have to take responsibility for the public cost of child care. The municipalities receive state grants for child care expenses, but state grants do not take into account the form of child care provision. Financing the child home care allowance scheme is much cheaper than organizing high level child day care. That is why many municipalities pay local supplements on top of statutory allowances, hoping for longer home care periods (Kosonen 2011).

Parental leave benefits are paid as earnings-related benefits or at a basic level if the parent has no or low former work income. The net compensation rate of average female earnings is about 80 percent. There is no income ceiling for the benefit, but the compensation level decreases at higher wage lev-

els. The basic benefit amounts to about 30 percent of average net earnings with non-taxable child allowance for one child (Table 1). There used to be some incentives for the parents to return to the labour market after a one-year care period, because in this way they could accumulate earnings related benefits for the next child's parental leave period. After the reform in 2005 this incentive was abolished, because the parents could maintain the level of the former earnings related benefit if the next child is born before the former is 3 years of age.

There are many differences in the Finnish child home care scheme compared with e.g. the Norwegian or the Swedish schemes (Rantalaiho 2010). In other Nordic countries the age limit for entitlement concerns only children below 3 years of age. In Finland the age limit concerns only the youngest child in the family, but not other siblings under the obligatory school age of 7. If the siblings of the youngest child are also cared for at home the parents are entitled to a (small) supplement for each of them. Furthermore, low-income families are entitled to a means-tested supplement (Table 1).

The statutory level of basic child home care allowance is rather low and counted only about 20% of the average female net wage with child allowance. Low-income families are entitled to a full or partial supplement, which increases the net level up to 25% of the average net wage. In the example (Table 1) the supplements for siblings are counted on top of 'low-income' family. Having three children at home increases the carer's income with child allowances up to 44% of the female net wage income.

Table 1. Parental leave benefit and the elements of statutory child home care allowance for a parent with 1–3 children and income level compared with women's average net wage (added with non-taxable child allowance^a), € per month 2011.

Number of children	Allowance, € per month		Net allowance	+ Child allowance	Net income % of net wage
	Per child	Per carer			
Parental leave benefit, 1 child:					
Basic allowance		553	523	624	30.0
Earnings-related		1895	1571	1671	80.4
Child home care allowance:					
1st child's basic allowance	328	328	305	428	19.5
+ Means-tested part, if low-income family	175	503	437	538	25.9
+ 2nd child < 3 years	98	601	511	722	34.7
+ 3rd child > 3 years	63	664	588	911	43.8

^aFamilies with children under 17 years of age are entitled to non-taxable child allowance, which is paid for each child at an increasing level. The recipients of the allowance are mostly mothers. The child allowances are included as carer's income in Table 1.

If the youngest child entitles one parent to parental leave benefit, the other siblings at home do not entitle the family to child home care allowance. However, if the parental leave benefit is less than the child home care allowance would be, the difference between the hypothetical CHCA and the parental leave benefit is paid to the family. It is common (and unofficially expected) that if the parent is on parental leave, other siblings are also cared for at home. In public debate mothers have been blamed of being lazy and increasing public child care costs even by top-level civil servants, if the siblings are enrolled in public child day care when one of the parent cares for the youngest at home (Hiidensalo 2006; Vartiainen 2012).

The child day care fees are harmonised in the whole country since 1998. The level of child day care fees depends on the income and size of the family and how many children attend day care from the same family. In 2011 the maximum fee for the first child was €254 and for the second child €229 per month. The fees of the following children are 20% of the first child's fee.

4 The data and empirical method

Our analysis makes use of the new Finnish static microsimulation model. Microsimulation is an empirically based data modelling technique that has been traditionally used in the areas of taxation, social benefits and other types of economic activity. The new Finnish microsimulation model⁵ is administrated by Statistics Finland and there has been wide cooperation with various organizations such as the Ministry of Finance, the Social Insurance Institution of Finland (Kela), the Government Institute for Economic Research (VATT), the Ministry of Social Affairs and Health and the National Institute for Health and Welfare (THL). The new microsimulation model simulates taxes and benefit entitlements for the Finnish household population. The model utilizes the Income Distribution Survey (IDS). The year 2009 is used as base line.

The IDS contains 27,000 individuals and 11,000 households representing about 2.5 million households and 5.2 million inhabitants. The survey is cross-sectional based on annual information and produced yearly by Statistics Finland. A majority of income data is driven from registers, but some information is collected by interviews. Such information concerns e.g. monthly activities (how many months each person is in full-time or part-time employment, at home caring for dependent children, in retirement etc.). The use of child day care services per child and the care fees are also collected by interviews, because there is no individual register on child day care places. For the child

⁵ See http://www.stat.fi/tup/mikrosimulointi/index_en.html.

home care allowance (CHCA) there is a lot of different kinds of register information, produced by the Social Insurance Institution (Kela). So far information about the children covered by CHCA has been based on parent and household level information, which has meant that it was not known which of the children in a family are covered by the allowance. In this paper the calculations are made by utilizing for the first time additional register information of child-specific, monthly information on child home care allowance spells.

We apply an application which will later be part of the new microsimulation model SISU, which uses SAS macros as programming language. The new application allows calculations at individual level instead of household level as in the previous child home care allowance model. Now children's age of entitlement to child home care allowance can be varied in the simulations. Hence, the new application is a very flexible tool for planning and evaluation purposes for the Finnish child care system. Information needed for calculations are derived from data such as: start and end time of potential CHCA spells for all children under a certain age, number of siblings under 3 years, number of siblings under 7 years, size of the family and income.

Our application offers two alternative options for calculations: simulations based on 1) actual data on child care spells (from registers) and 2) user-defined spells. Formerly it was possible to simulate only different levels of the allowance by changing only benefit and income parameters. The application is a static microsimulation model, which means that it does not take into account individual behaviour. In our analysis we assume that current behaviour (child care choices of mothers or fathers) changes potentially after policy changes, which either cut or enlarge the take-ups of CHCA.

The model calculates CHCA spells for the children, but the allowance is taxable income for the parent who is the recipient. That is why the information is summarized from the children and moved to the parents, with chosen rules, in order to be able to tax the allowance with a tax model together with other taxable income.

In this paper we simulate a cutting version of the policy rationale of the child home care allowance schemes. We also had an experimental case study, in which we increased child home care allowance take-ups for all children under 3 years of age and their siblings. In this experiment, however, we could not enough eliminate and control the impact of the just born children and their siblings, who are mostly taken care of at home with parental leave benefits. So we left that case out of this paper. We will calculate a model where the right to child home care allowance is taken away from children at age two and their siblings. This corresponds to the Government's plan discussed in spring 2012.

5 The children covered by different child care schemes

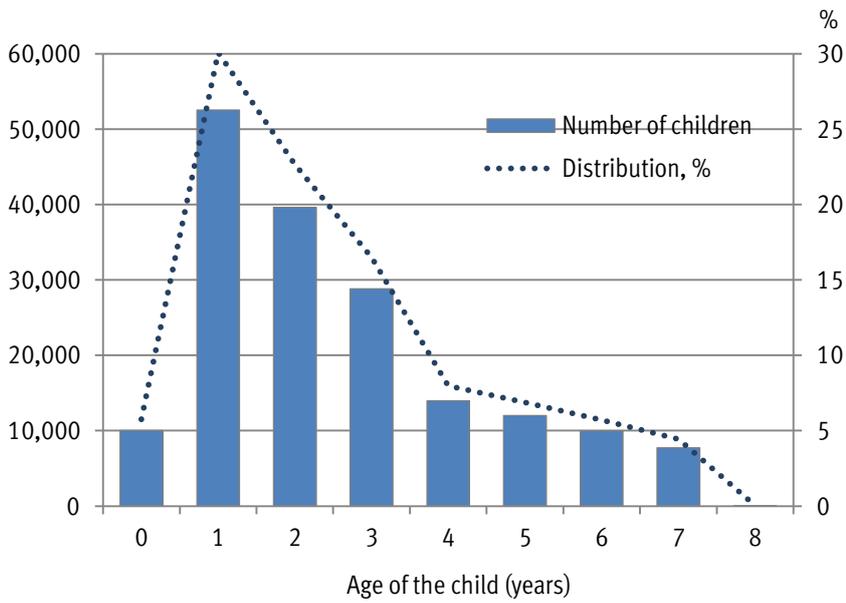
The unofficial target of child home care allowance is, as described in the former chapter, that if the youngest child is cared for at home also the older siblings 'should' be cared for at home. According to a survey, about 10 percent of parents were at home with a child while having other siblings in public child day care in the early 2000s. Only 3 percent of these parents were on parental or child care leave, a good 2 percent were unemployed, 2 percent were immigrants and the rest had other reasons, such as special care needs, etc. (Väinälä 2004). There are no unanimous targets for children before pre-school age (6) or obligatory school age (7) to attend early childhood education (Ministry of Social Affairs and Health 2004). However, a Committee on early childhood education is preparing proposals for a new legislation in spring 2014.

Statistics on child day care are scarce because information is collected only at municipal, not individual, level and only at the end of the year. Information about how many families use child day care services is based on the IDS interviews. Instead, information about child home care allowance is compiled at the Social Insurance Institution (Kela) and is available at individual level for the recipients, families and covers also each child's spells on child home care allowance.

Figure 1 (p. 14) illustrates the number and distribution of all children by age covered by child home care allowance in 2009. A majority (36%) of them are at the age of one year at the end of the year. The median age of the youngest child is one year and the average age 1.24 years. Every fourth child is at least 4 or more years of age. All these children are older siblings of one child less than 3 years of age, but there are also sibling status children who are less than 3 years of age.

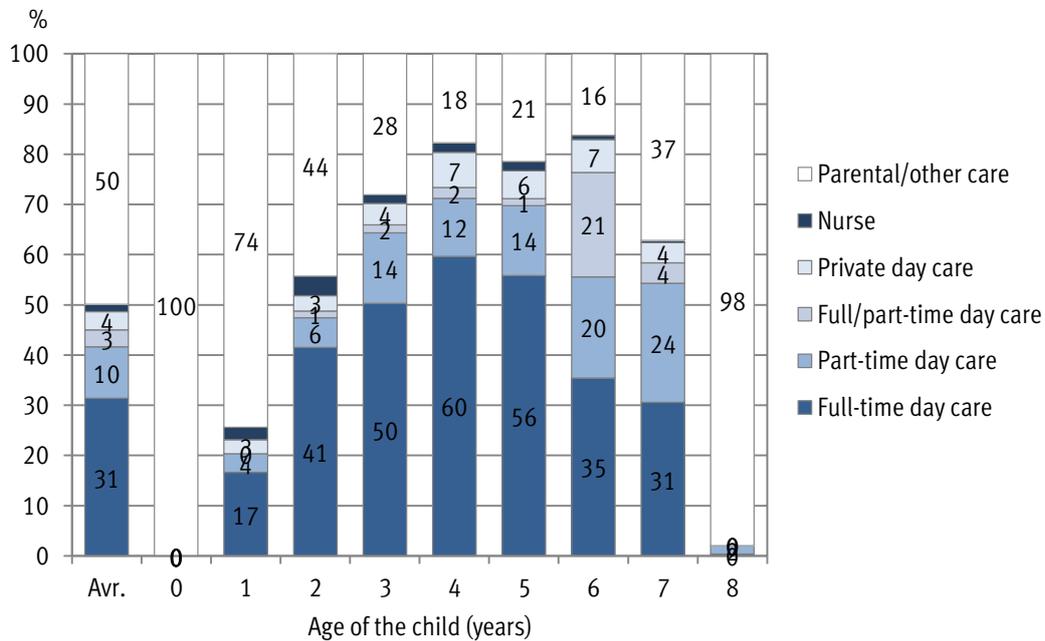
Figure 2 (p. 14) presents children at different ages covered by different care provisions in 2009. 'Parental/other care' refers mainly to the parents who receive either parental leave benefit (age 0 years of age) or child home care allowance. Many children change form of day care during the year because they enter obligatory school, they receive a sibling and the parents take the child home from day care, the parents become unemployed, and so on. So the diagram can only give an overview of the situation.

Figure 1. All children covered by child home care allowance in 2009 by age.



Source: Kelasto statistics, see <http://www.kela.fi/in/internet/english.nsf/alias/kelasto>.

Figure 2. Children covered by different child day care provisions by age during the year 2009.



Source: Calculations from IDS.

The IDS and the microsimulation model offer the possibility of calculating which part of the children are first children who entitle the parents to the child home care allowance. Calculating this is not quite straightforward, because some of the first children become second children or leave the allowance during the year, and another child will be the first child. In order to make sense of the presented statistics the age at the end of the year is chosen to describe the cross-sectional information from the IDS (Table 2).

In Table 2 both upper lines describe all first children (youngest children) from 0 to 3 years of age at the end of the year. Also the siblings of the first child are presented by age group. The share is greatest (85%) among children whose youngest sibling turns one year of age during the year. Potentially there are about 322,000 children who could be taken care of at home according to the current rules for child home care allowance. Of them, more than half (53%) are covered by child home care allowance. About two-thirds of the children are eligible for first child's child home care allowance and one-third (37%) for siblings' allowance.

Table 2. The number of children at the age of maximum 3 years at the end of the year: all children and children covered by child home care allowance with their siblings less than 7 years of age.

The number of children by age of the youngest	Age of the youngest child				Total
	0	1	2	3	
All children by age	107,600	97,400	70,100	46,600	321,800
The youngest child	65,800	60,900	44,600	30,700	202,000
His/ her siblings	41,800	36,500	25,500	15,900	119,700
The share of siblings %	38.8	37.5	36.4	34.1	37.2
Recipient of CHCA by age	23,750	72,040	39,710	10,620	146,120
The youngest child	9,080	53,680	26,570	9,660	99,000
His/ her siblings	14,660	18,360	13,140	958	47,120
The share of siblings %	61.8	25.5	33.1	9.0	32.2
The share of recipients %	22.1	74.0	56.6	22.8	45.4

Source: Calculations from the IDS 2009 and microsimulation model.

Cutting child home care allowance for those who become 2 years of age instead of 3 years of age would mean, first, that all the children in age group 3 would lose the entitlement (about 46,600 children) and part of those children who turn 2 years of age.

As mentioned earlier, compared to other Nordic countries in Finland the age limit for entitlement concerns only the youngest child. If the age limit for entitlement concerned only children below 3 years of age, there would be 244,944 children under 3 years and 131,510 of them would be CHCA recipients (Table 3). In Finland a child cannot be simultaneously in child day care and on CHCA,

which means that children using CHCA do not participate in formal early childhood education outside the home, with the exception of pre-school education at the age of 6 years and some part-time playground parks. Table 3 reveals that there are 38,850 children who are above 3 years and are CHCA recipients and thus outside early childhood education. For children in low-income families in particular and immigrant families this can be an issue, when it obstructs their integration into the mainstream.

Table 3. Children under obligatory school age of 7 when the youngest child is under 3 years of age.

	Under /\geq 3 years	Above 3 years	Total
All children	244,940	80,400	325,340
Recipients of CHCA	127,770	18,350	146,120

Source: Calculations from the IDS 2009 and microsimulation model.

6 Outcomes of the simulations

Next we examine the policy rationale: cutting child home care allowance for the children at the age of two and their siblings (Cuts model). The model corresponds to the discussion in Parliament in spring 2012. The policy rationale behind it was solving existing problems in mothers' employment and achieving savings in CHCA, more commodification and savings in social transfers.

At first simulation was carried out for the present situation by using this spell data for control and comparison. This baseline model produced 146,120 CHCA recipients when the youngest child is under three years old and the siblings are under school age. Microsimulation calculations use IDS 2009 data and additional register data of child-specific, monthly information of child home care allowance spells as they are. Policy changes are conducted on existing data.

Table 4 contains results for the simulations. The model 'Cuts' decreases the number of children on CHCA down to 111,810 and more than 34,000 children miss out on CHCA. The speciality of the – calculations which are based on spell data comes out here: it is possible to calculate the number of those who totally drop out, and of those who lose only some months during a year, but do not drop out totally. After the cuts there are 96,250 first children in the households who entitle the parents to CHCA and they have 15,560 siblings as beneficiaries. The cuts concern about 23% of children on CHCA in the current situation.

Table 4. Number of children after policy change.

	Children on CHCA , total	First children	Siblings
Baseline model	146,120	108,690	37,440
Cuts Model	111,810	96,250	15,560
Change	-34,310	-12,440	-21,880

Source: Microsimulation model.

Cutting CHCA for children at the age of two and their siblings would increase the demand for child care places. Table 5 contains results for potential increase in child care demand with the same amount as the children's entitlement to CHCA ends.

Table 5. Potential change in child care demand, i.e. decrease of CHCA months.

	Potential change in months	
	Avr.	Sum of care months
Baseline model	6.73	1,040,300
Cuts Model	5.84	734,700
Change	-1.13	-342,400

Source: Microsimulation model.

Compared to realized months in 2009, the average decrease is 1.1 months. Care months in child day care would increase by more than 340,000. The potential change in child care demand totals 34,310 new places for new children at least for some period in that year, those who totally lose the entitlement to CHCA. If we suppose that all the lost CHCA-months turn out to child day care demand, the increase of child day care demand can be expressed in full-time places for a whole year, i.e. the number of months divided per months, which in this case would total 28,533 child day care places for 12 months per year.

7 The parents' perspective

7.1 Child home care allowance and socioeconomic status

The parent who uses the child home care allowance is, as a rule, the mother. Only 7 percent of all recipients were fathers in 2009. The age of the average female recipient was 31 and of the average male recipient 37 years (median 34 years). About 54% of all mothers with a child under 3 years, including mothers with a newborn child, used at least one month of child home care allowance, according to IDS data. About 68% of mothers who had received child home care allowance, were defined as 'stay-at-home mothers' by their socioeconomic status. About 22% of eligible mothers, who

did not use child home care allowance, were also classified as ‘stay-at-home mothers’, meaning that some of them can be on parental leave (Table 6).

In the IDS the socioeconomic status describes the person’s main activity and main income source during one year. The months in shorter activities are ignored when the final socioeconomic status is formed. The number of persons who are classified as ‘stay-at-home mothers/fathers’ caring for their children at home differs from the register information, which describes how many months each parent has received child home care allowance.

Table 6. Mothers, recipients and non-recipients of child home care allowance, number of fathers and the share of non-recipient eligible mothers of all women by socioeconomic status.

Socioeconomic status (main activity and income source during a year)	Mothers with child < 3 years of age		% of mothers with child < 3 and not using CHCA	Fathers using CHCA, number and % of all recipients
	Recipient of CHCA	Non-recipient		
Total number	106,200	90,000	45.9	7,400
%	100.0	100.0		7.0
In employment	26.2	69.2	30.9	12.1
At home	67.5	21.7	78.6	3.0
Other	6.3	9.1	44.8	17.5

Source: The IDS.

Table 6 describes the socioeconomic status of mothers with children less than 3 years of age in 2009. Mothers, who had used and not used child home care allowance, are presented separately. The parents’ child home care allowance periods have been calculated from payment periods based on the youngest child entitling the parent to the allowance. About 68 percent of mothers, who used child home care allowance, were housewives by their main activity (socioeconomic status) during the year. About 26 percent of mothers had returned to or entered the labour market. The eligible mothers, who did not use child home care allowance, were mainly employed (69%), and a good one-fifth were at home. Part of these mothers were on parental leave.

The recipients of child home care allowance as well as parental leave benefits are not always on leave, because they have no permanent employment contract and job to return to. These recipients are classified as persons on unpaid leave. In the IDS the parents are asked whether they have work to return to after the care period. Even though the results are rough they give some picture of the extent of those parents (mostly mothers) who lack the choice between care and employment (Table 7). Of the mothers who are at home and receive CHCA during the year, less than half (42%) have a job to return to. Thus, if there are cuts in CHCA, and this is expected to increase mothers’ employment, one share of this increase would happen via job seeking and unemployment.

Table 7. Mothers receiving child home care allowance at least some time in 2009, % of them with and without a job, and in other situations.

Soc. Status	Total, %	Job: yes	Job: no	Other ^a
Average	100	39	43	18
Employed	100	40	12	49
At home	100	42	56	3
Other ^a	100	4	45	51

^aThe question has not been relevant during the interview because the parent is already working, studying or looking for work as unemployed, but has received allowance before or after the interview.

Source: Calculations from IDS.

Table 8 contains characteristics of the recipients when cuttings were applied. Some differences exist between recipients on whom the cuttings had an effect and parents who are already working. Recipients who would lose CHCA had lower education (55% had primary and secondary education) than parents who did not use CHCA (48% had primary and secondary education).

Table 8. Socioeconomic status and education of recipients who would lose CHCA and parents who did not use CHCA.

	Recipients who would lose CHCA (% of total)			Parents who did not use CHCA (% of total)		
	Fathers	Mothers	All	Fathers	Mothers	All
Socioeconomic status						
In employment	33.6	31.1	31.3	88.8	56.2	72.4
At home	37.8	62.7	60.4	0.8	31.5	16.3
Other	28.6	6.2	8.2	10.4	12.2	11.3
Total	100	100	100	100	100	100
Education level						
Pre-primary and upper secondary	46.4	55.5	54.7	54	41.3	47.6
Lowest tertiary level	37.4	30.2	30.8	27.8	37.6	32.8
Higher-degree tertiary education and doctorate or equivalent	16.2	14.3	14.5	18.1	21.1	19.6
Total	100	100	100	100	100	100
Household type						
Single parent	0	5.3	4.8	2.1	3.5	2.8
Couple and children	92.2	91.3	91.3	91.5	90.2	90.9
Other household	7.8	3.5	3.9	6.4	6.3	6.3
Total	100	100	100	100	100	100
Total number	4,200	42,400	46,600	34,700	35,500	70,200

Source: Microsimulation model.

About 60% of the parents who would lose CHCA were a 'stay-at-home mothers' by their socioeconomic status while the proportion in the reference group was about 16% of parents, many of them on parental leave. The mean of disposable income divided by the number of consumption units in the household was 20,725 euros for those on whom cutting would have an effect and 28,920 euros

for those who did not use CHCA ($p < .0001$). 4.8% of recipients who lose CHCA are single parents whereas of parents who did not use CHCA 2.8% are single parents.

As a summary, there are remarkable differences in socioeconomic resources between the families and mothers in order to cope with new rules for child home care allowances. The next step would be to develop criteria in assessing and imputing alternative income sources to the parents who lose their CHCA income. In a static model the IDS offers background information for those who have a job to return to, but for other parents there are more alternatives, such as unemployment benefit, spouse's income, and so on. That, however, is not done in this paper.

7.2 Impacts of the cuts on parents' potential labour supply

If the right to child home care allowance would concern only children less than two years of age and their siblings as before, in total almost 47,000 parents would lose at least some of their paid allowances. That would concern about half of current recipients. More than 12,400 parents would completely lose the allowances paid in 2009 (Table 9).

Table 9. The number of parents who would lose in the cutting of CHCA and the number of months they lose allowance income per year.

Outcomes of the cuttings	Number of parents	%	Number of months		Number of person-years
			Sum	Average	
Baseline model	111,400	100	781,200	7.0	65,100
Recipients after cuts	99,100	89	607,700	6.1	50,600
– those affected, total	46,600	42	–165,900	–3.6	–13,800
– only partly affected	34,200	31	–92,300	–2.7	–7,700
– fully affected	12,400	11	–73,600	–5.9	–6,100

In the present situation CHCA has been paid for 781,200 months in total, a good 7 months per recipient per year. If the months are transformed into 'person-years' (concept used e.g. in the labour force surveys) by dividing the sum of the months by 12, we get roughly 65,100 full-time person-years. The Cuts model would increase the potential labour supply of 46,600 parents, to total 13,800 person-years, and on average 3.6 months (Table 9). Just for comparison it is interesting to know that in 2009 there were on average about 21,000 women aged 15–24 and 16,000 women aged 25–34 years as unemployed according to the labour force survey in 2009⁶. Of the parents on whom the cut-

⁶ See http://pxweb2.stat.fi/database/StatFin/Tym/tyti/tyti_fi.asp.

tings had an effect already 30 percent were employed at least part of the year, but 61 percent were stay-at-home mothers/fathers, and 58 percent of them had no job to return to.

7.3 About impacts on public costs

Child day care costs are difficult to estimate. On the one hand, child day care services are assumed to be more expensive than cash for care schemes. Typical calculations take account of only immediate costs in public budgets. They do not take account of e.g. increased tax revenues when parents' income increases in the labour market. Also paid care returns a part of their wage costs to the public sector via the taxes they pay. On the other hand, cash for care schemes decrease taxes because of losses in wage income. (Kajanoja 1999; Haataja and Pylkkänen 2009). One reason for the very aggregate quality when calculating costs of child care has been the lack of relevant individual level representative data and methods.

In this paper it was possible to use individual level spell data of child care periods at home. It was possible to capture each child's care period at home as well as to transfer the care periods to the parents. These periods can be compared with other activity months of the parents and assess, for example, not only how many new employees or carers policy changes may produce but also how many person-years at home or in the labour market changes could potentially produce.

The immediate cross savings in the child home care allowance scheme after cuttings are available immediately from the outcomes of the microsimulation method (Table 10). Furthermore, it will be possible to estimate first round and second round effects on public costs as well as on the families and individuals in the families. This, however, necessitates some further work. Taxing new benefit schemes would also mean some considerations about how to handle the wage income of those persons who are assumed to increase their labour supply. That will be among the next jobs when working on this spells-model.

Table 10. Gross costs of cutting child home care allowance.

Child home care allowance	Gross costs 1,000 euros	Change	
		1,000 euros	%
Gross costs in 2009	278,357		
The Cut model	211,175	-67,182	-24.1

Finally we discuss roughly potential changes in child day care costs. In 2009 the costs of child day care services totalled 2,578 million euros and the families paid child day care fees of 334 million euros in total. The fees paid by the parents covered about 13 percent of total costs. The number of children in public child day care was at the end of the year 200,730, and 80 percent of them were in full-time care. There are no statistics on how many children attend child day care during the whole year (see e.g. Petäjaniemi and Pokki 2010). The number of care days is compiled from the whole year and was 27 million full-time days and 6 million part-time days, in total 33.4 million care days. If this sum is divided by the average week days in a month (21.5) we get a total of 1.6 million care months. Finally, this rough calculation produces a child day care cost for one care month of on average €1,442. This aggregate-based figure can be used as one basis to estimate changes in child day care costs in our alternative calculations.

The Cuts model would potentially increase demand for child day care by 305,600 months. If child day care costs per care month of €1,442 are assumed, child day care costs were increased by 441 million euros and compared to the baseline model the increment is 19.6%. On the other hand, the simulation model gives an approximate 24% decrease (67 million euros) in gross CHCA costs. These calculations are, however, very rough, and real decreases or increases in labour supply are not taken into account.

8 Summary and conclusions

During the last two years high-tempered public discussion has focused on family policy, especially on child home care allowance (CHCA). The allowance is a cash benefit scheme with leave of absence from work for families who want to care for their child at home after parental leave instead of demanding a place in public child day care. The entitlement to the allowance lasts until the youngest child turns 3 years of age. Also the siblings of the youngest child, if cared for at home, are entitled to the allowance, until they start school.

The possibility to longer leaves has drawn especially mothers of young children from the labour market for longer periods. That has been one justification for the proposals reforming the allowance scheme. In this paper we have focused on the proposal in 2012 to cut the entitlement by one year and the methods for analyzing potential outcomes. Analyzing outcomes for this kind of reform with static microsimulation method would have been difficult with current models and data. The models available took into account only parameters which impact on the level of the allowance, not changes in the child's age and chronological order in the family entitling to the allowance.

In this paper we have reported the outcomes of a new application we started to develop for calculating child care allowance alternatives. The application takes advantages of new kind of data: child based monthly allowance spells. That information made it possible to regulate the entitlements of children to the allowance according to their age by months. The aim was to estimate, not only the number of children affected by the reform but also the number of months during the year the children and their parents lose or win. Changes of months on child home care allowance affect potentially, for instance, the demand for municipal child day care places. The simulated information is also summarized from the children and moved to the parents with chosen rules. Furthermore, other kind of calculations are needed in order to estimate potential changes in wage income and child day care costs of the families and net costs of child day care provisions for the welfare state.

The simulation results suggest that cutting the CHCA will decrease the number of children on CHCA from 146,120 children to 111,810 children. About 86% of these children were first children in the households and 14% were siblings. The cuts would have an effect on about 23% of children on CHCA. Cuts would lead to a potential increase in child care demand which would be more than 34,310 child care places if all the lost CHCA months are turned out to child day care demand. It was detected that cutting CHCA by one year would concern in total 47,000 parents who would lose at least some of their paid allowances. The model also enabled identifying those parents who would lose their paid allowances partly (31%) and fully (11%) during the year. If the months are transformed into person years, cutting the CHCA by one year would increase the potential labour supply of 46,600 parents by total 13,800 person-years and on average by 3.6 months.

Although more accurate data on child home care allowance spells was available we were lacking monthly information on parents' income and household structure. This may have an impact on results. Also some subsets of the data (e.g. father using CHCA) had only few representatives. In some cases we were not able to capture the whole occurrence of parental leave especially when a new baby was born immediately after the first child. It is rather common in Finland that when the parents are on a new parental leave the older siblings are cared for at home, too. Obvious cases were imputed by using existing knowledge of the parental leave period data.

As a summary, cutting the entitlements to child home care allowance would have rather big effects on the parents, especially mothers' potential labour supply. It is not always simple for mothers to switch between child care leave and paid work. The mothers who use longer periods of child home care allowance less often have a job to return to than mothers who return before the youngest child turns 3 years of age. The lack of jobs to return to, as well as the present economic situation, would mean that potential labour supply would first turn out as an increase in unemployment for a great

deal of these mothers. Statutory child home care scheme with local supplements had thus supported more mothers' decommodification than commodification in 2012. Until 2013 the basic unemployment benefit was means tested, and cutting child home care allowance would have meant no income of their own for many affected mothers. The plans to cut child home care allowance were altered in the Government's proposal in August 2013 to be divided half and half between the parents. In practice, however, the reform would mean cutting mothers' longest care spells approximately as calculated in this paper.

The exercises capture the care spells from different perspectives because of the monthly spell data. We have calculated the amounts of months which potentially increase the parents' time at work (or looking for work), which potentially decrease children's time at home covered by allowance and which increases demand for other forms of child day care. However, the data lags statistically fully adequate information about children's monthly periods in public child day care. The next aim is to develop the whole calendar year month by month for each child in order to capture the spells more precisely. For that purpose we will use also individual, even if not fully adequate, administrative child day care data and other monthly spells information.

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