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Microsimulation modelling of the National Childcare Scheme: Updated cost estimates using SWITCH

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Abstract: *We use SWITCH, the ESRI's tax-benefit model to simulate the scale, cost and distributive impact of the National Childcare Scheme. The paper provides updates to such estimates these authors produced in 2017, when the scheme was in its naissance. We estimate, that under the current parameters, the scheme will cost just under €180 million and will offer reduced childcare costs to 144,000 children. This cash transfer will be of most benefit to families in the bottom third of the income distribution, with the poorest families seeing income rises of 0.7 per cent. This largely progressive profile is attributable to the means tested nature of the scheme. We bound our estimates by also allowing informal childminders avail of the scheme- this increases the cost and scale of the scheme noticeably. We also highlight, that as is the case with any subsidy, the incidence may not fully be felt by households. Future research ought to examine how the price structure of childcare facilities adapted in response to this new streamlined scheme.*

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1 Introduction

The National Childcare Scheme (NCS) announced in 2017[1] is at the time of drafting now open to applications. The scheme aims to provide "a single, streamlined and more user-friendly scheme and will include wrap around care for pre-school and school-age children", replacing four pre-existing targeted childcare subsidies.[2] The NCS will provide hourly subsidies towards registered childcare costs in a targeted manner, whereby parents of children between the ages of 6 months and 15 years whose income is below a certain level will receive a maximum hourly subsidy, which will be reduced in line with parental income. Those with means above the maximum income limit are eligible for a non means tested universal hourly subsidy (UHS) if their children are above 6 months but below the age at which the child can avail of the Early Childhood Care and Education (ECCE) scheme.

The NCS seeks to satisfy a number of policy objectives. The first is to address the high cost of childcare in Ireland by providing a progressive subsidy to supplement childcare costs. A second policy objective seeks to ensure equitable treatment so that all families are assessed on a consistent basis bearing in mind their income and childcare needs. The third policy objective is to ensure that the system is clear and straightforward and makes use of technology to ensure the application process is straightforward and timely. A fourth policy objective is to support parental choice and geographic access to a registered childcare provider while a final policy objective seeks to ensure good governance of the system with clear eligibility rules and robust administrative structures. It is envisaged that the NCS will help ensure access to affordable childcare and thereby help reduce a potential barrier to labour force participation.

A report documenting the incorporation of NCS subsidies into SWITCH, the ESRI tax-benefit model, was provided to the Department of Children and Youth Affairs in September 2017 (Keane et al, 2017). The SWITCH model was extended to allow simulation of the qualifying conditions and the proposed income related childcare subsidies for a nationally representative sample of households. In this report, we use this framework to update estimates of the cost of the scheme, based on the scheme parameters at the time of writing. We offer valuable insights into the cost implications of the scheme from take-up of the subsidy amongst professional childminders (non-centre-based care). We examine scenarios with full and zero take-up in the non-centre-based sector to bound the cost and scale of the

[1] The scheme was originally named as the Affordable Childcare Subsidy. As well as a change of name to National Childcare Scheme, there have been some changes from the original proposals. These are described and analyzed in Section 4.

[2] New applicants will be placed on the new NCS scheme; those already benefiting from the pre-existing schemes will be given a choice as to whether to remain on the existing scheme or move onto the new NCS scheme.

scheme. We also examine how the subsidy will affect households along different points of the income distribution.

An important caveat to our analysis is that it assumes there is no change in the behaviour of households (e.g. in hours of work) or childcare providers (particularly in prices charged to families) as a result of the scheme being introduced. As such, our results represent the so-called "morning after" policy effect, whereby reforms have been implemented but behaviour is static. As a word of caution, these behavioural responses could be very important, but it is difficult to estimate a childcare provider's ability to increase prices and a parent's labour supply response when faced with compensated childcare. We will be able to assess how NCS affected work patterns of affected parents and the price paid per hour at childcare services in the future, as more timely survey data become available.

The report is structured as follows: Section 2 summarises the NCS, Section 3 presents information on SWITCH. Section 4 presents estimates of the aggregate cost of NCS, based on detailed modelling of the scheme within SWITCH, using data from the CSO's Survey on Income and Living Conditions for 2013, 2014 and 2015. It also examines the distributional profile of expenditure on the scheme. Section 5 draws together the main conclusions.

2 The National Childcare Scheme

The National Childcare Scheme will provide financial support for those using registered childcare. Centre-based care and professional childminders can avail of the subsidy so long as they register with Tulsa and comply with administrative features such as ICT standards needed to monitor the scheme[3]. The scheme covers children from the age of 6 months up to the age of 15 years. The subsidy has a targeted, means-tested element as well as a universal component. Within the targeted component the maximum hourly subsidy available differs by the age and educational enrolment of the child, with younger children receiving a higher subsidy (see Table 1 for maximum hourly subsidy rates). Parents with assessable income below €26,000 per annum will receive the maximum hourly subsidy. The subsidy will be gradually withdrawn up to an assessable income of €60,000 per annum, at which point no targeted subsidy is payable. These income limits are increased by €4,300 for families with a second child and €8,600 for families with three or more children. Assessable income consists of most income sources, be they market income or social welfare payments.[4] Assessable income is net of income tax,

[3] Capital grants are available to facilitate this transition.
[4] For a list of income sources excluded from assessable income see Schedule 3, page 81 of DCYA (2017).

USC, social insurance contributions, pension contributions and maintenance paid towards a child/spouse/former spouse.

The maximum number of subsidised hours available depends firstly on the labour force status of the parent(s) as well as if the child is in education yet or not. If both parents (or the only parent in the case of one parent families) are working or studying the child is entitled to the Enhanced Hours Subsidy (EHS). This subsidises up to 40 hours of childcare per week for children not yet in education[5] and for those in education (including those who are eligible for ECCE) it 'wraps' around school hours so that total maximum hours covered by education and the subsidy reach 40 (see Table 2 for the maximum hours entitlement and number of term-time weeks).[6] Families with at least one parent not in work/education can receive the Standard Hours Subsidy (SHS) for up to 15 hours per week year round for preschool children and during school holidays for children in education.

Finally, a Universal Hours Subsidy (UHS) subsidises the cost of registered childcare by 50 cent per hour for all pre-school children not yet eligible for ECCE and whose parental means are above the maximum limit. For EHS, SHS and UHS the weekly amount of the subsidy received depends on the actual hours of registered childcare use (subject to the maximums). The subsidies are paid for up to 52 weeks of the year in the case of EHS/UHS and for children not yet in education eligible for SHS. For those eligible for SHS with children in education, the subsidy is payable during school holidays only.

Table 1: Maximum hourly NCS targeted subsidy rates, 2019

Category	SHS/EHS
Hourly rate for a child under 1 year	€5.10
Hourly rate for a child aged 12 to 35 months	€4.35
Hourly rate for a child aged 3-5 years and not in school	€3.95
Hourly rate for children of primary school-age	€3.75
Hourly rate for children of secondary school-age	€3.75

Source: DCYA (2019)

[5] i.e. up to the age of eligibility for the Early Childhood Care and Education (ECCE) scheme.
[6] For weeks spent not in education (e.g. school holidays) the maximum of 40 hours per week is covered by the subsidy.

Table 2: Hours per week & number of term weeks for NCS targeted subsidy 2019[7]

Stage of the Education System	Max. hours per week during term-time	Number of term-time weeks per year
Early Childhood Care and Education programme	25	38
Primary school - infant class	17	36
Primary school - 1st-6th class	12	36
Post-primary school	10	33

Source: DCYA (2019)

The NCS will replace four current childcare funding programmes currently in existence. These schemes are the Community Childcare Subvention (CCS); Childcare Education and Training (CETS); After-school Childcare (ASCC); and the Community Employment Childcare (CEC). Under the CCS, DCYA subsidises childcare costs for eligible low-income families. Parents mainly qualify for CCS through their entitlement to conditional Social Protection payments and the Medical Card. Under the CETS programme, qualifying[8] SOLAS or Education and Training Board (ETB) trainees or students can avail of childcare places in registered services for the duration of their courses. ASCC provides for after-school childcare provision to parents returning to work. Eligibility for ASCC is determined by DEASP and provides for parents of primary school aged children to avail of ASCC for a maximum period of 52 weeks. Finally, the CEC programme is available for those taking part in Community Employment (CE) schemes. CEC provides up to 50 weeks childcare provision per year while participating in CE. Table 3 shows the expenditure on, and number of children covered, by the four current childcare subsidy schemes. Total expenditure stood at close to €87m in 2016 with in excess of 32,000 children availing of such schemes.

[7] DCYA confirm that children over 3 but not yet ECCE eligible and children above the age of ECCE eligibility but who are not yet in school will be entitled to the EHS/SHS for 40 hours per week as long as they satisfy the means test. SWITCH, therefore, models any such children in these categories as being entitled to 40 subsidised hours per week.

[8] Qualifying courses are determined by the Department of Education and Skills.

Table 3: Childcare Subsidy programmes, 2016 expenditure and recipients

	Community Childcare Subvention (CCS)	Childcare Education & Training Support	After-School Child Care (ASCC)	Community Employment Childcare (CEC)	Total
Expenditure (annual)	€61.7m	€17.0m	€1.6m	€6.5m	€86.8m
Number of children covered	25,405	3,888	637	2,202	32,132

Source: DCYA (2016)

3 SWITCH, the ESRI's microsimulation model

The NCS combines a universal element and means-tested component. SWITCH, the ESRI microsimulation model is well placed to analyse both of these features – it already analyses universal child benefit payments, and many complex means-tested schemes in the social welfare domain, based on detailed data for individuals and households in the CSO's Survey on Income and Living Conditions.

Policy changes are often considered in terms of their effects on a number of "hypothetical families". This approach has severe limitations. For example, in Ireland less than 1 family in 20 falls into the category of "one-earner couple with 2 children", a family type that tends to attract attention at Budget time. Furthermore, families within this category differ in terms of income, housing tenure, and other characteristics that affect their tax-benefit position. More fundamentally, analysis of hypothetical families - no matter how well chosen - simply cannot give an overall picture of the impact of a policy change on incomes and work incentives.

Tax-benefit models are based on large-scale nationally representative samples of households. This ensures that the models represent as fully as possible the great diversity of household circumstances relevant to tax and social welfare. *SWITCH* (**S**imulating **W**elfare and **I**ncome **T**ax **C**hildcare and **H**ealth Policies), the ESRI tax-benefit model, is currently based on data drawn from the CSO's Survey on Income and Living Conditions (SILC) from 2013 through to 2015.With these combined years the survey contains detailed information on the incomes and labour market participation of nearly 10,000 households. The SWITCH database is adjusted from year to year to allow for key changes in incomes and population structure as forecast for the next budgetary year. Changes in social welfare rates, income tax rates, bands and allowances, and the structure of employee PRSI are all taken into account in the model. A significant advantage of the model is that analysis of policy options can be carried out *before* planned policy changes occur. The model can provide estimates of the aggregate cost of policy changes and identifies how the aggregate benefit is distributed across households. For example, in annual analyses of the impact of budgetary policy changes, the model is used to identify the percentage change in income in each income decile and the impact on household incomes across

different family types. It also allows for the analysis of the impacts of policy changes on incentives to work such as replacement rates and marginal effective tax rates.

3.1 SWITCH and incorporation of NCS

The SILC data underpinning the SWITCH model contains a wide variety of variables necessary to accurately model childcare subsidies. As well as containing information relevant for determining eligibility for the scheme such as incomes, labour market participation and family composition, it also contains information on the usage of childcare and the educational status[9] of the child. While SILC does not directly gather data on the usage of ECCE, SWITCH also models eligibility for the ECCE scheme which links in with the number of hours a child may be entitled to an NCS subsidy as discussed above. This ECCE modelling within SWITCH has recently been improved so that eligibility at the date of interview is precisely estimated based on the child's age in months.[10]

SILC also contains information regarding the hours of childcare used in a 'usual week' and the type of childcare used. The various types of childcare used are shown in Table 4. Parents are asked about their usage of centre-based care, be that pre-school (kindergarten, Montessori), crèche or a pre/post school centre.

[9] SILC data contains information on the level of education a child is engaged in i.e. pre-primary, primary, secondary. In order to establish the educational category required for NCS modelling (pre-primary; primary, infant classes; primary, 1st-6th class) a combination of the education level of the child, the child's age and the number of hours spent in compulsory education has been used to assign children as accurately as possible to the infant classes/1st-6th class groups.

[10] Previously ECCE eligibility was determined simply by looking at the age range of the child at date of interview with all children in a certain age band deemed to be eligible for the scheme. Remodelling means that we now take into account the child's age at relevant entry and exit points for ECCE i.e. we take into account their age at the last intake into ECCE, be that September, January or April and also ensure that the child will be below the maximum age of 5.5 years in June of the academic year. Note that formal childcare usage amongst the age group eligible for ECCE may be lower than administrative statistics as, in the years of the underlying data (2013/2014/2015), the ECCE scheme was open to a narrower age band.

Table 4: SILC Childcare Questions

SILC Variable	Corresponding Question
	Centre Based Care
pre_schl	During a usual week how many hours is <Name> cared for by a Pre-School of Equivalent (Kindergarten, Montessori)?
creche	During a usual week how many hours is <Name> cared for by a crèche of day care centre?
centre	During a usual week how many hours is <Name> cared for by a centre-based service outside school hours (before and/or after school even if it is at the school)?
	Childminders – paid and unpaid
child_mindr	During a usual week how many hours is <Name> cared for by a professional child minder at the child minder's home or the child's home? (This includes au pairs, friends and relatives when the friends or relatives are paid for child minding).
famly_mnd	During a usual week how many hours is <Name> cared for by grandparents, other members of the household (excluding parents/ guardians or partners of same) other relatives, friends or neighbours where there is no payment for childminding?

We model entitlement to NCS at the point of interview[11] i.e. based on current parental labour force status, income, child age, child educational enrolment and childcare usage. This is in keeping with the modelling of all taxes and benefits in SWITCH which calculates benefit entitlement and tax liabilities based on income and employment status of the person when interviewed. It is also necessary to model NCS entitlement at the point of interview as parents are not asked to recall their childcare usage throughout the entire year, rather they are asked about their childcare usage in a 'usual week'. It is unclear how parents interpret this question – for example if they report childcare usage in term-time etc.[12] NCS subsidy hours entitlements differ during term-time/non term-time. However, it is not possible to capture variation in hours of care used during the year. Our modelling is based on reported hours of childcare used during a usual week as per SILC. As such, the annual amount of subsidy that a child is entitled to is modelled based on the *usual* number of childcare hours used and we assume that these hours do not vary during and outside of term time.[13] This assumption is necessary in order to model the cost implications of having differential hours of subsidized care available during term time

[11] Interviews are spread throughout the year which is an advantage as we do not capture childcare information at a particular date which may be problematic – for example if all parents were interviewed during a school holiday period it may affect the answers they provide regarding childcare usage.

[12] Average hours of childcare reported by those interviewed during the summer months does not spike upwards compared to those interviewed in non-summer months which suggests that either parents interpret 'usual' childcare hours to be the average used over the majority of the year or/and that parents do not increase childcare usage over the summer months, for example relying on taking annual leave, summer camps etc. to cover childcare requirements during school holidays.

[13] We do, however, capture the term-time/non term-time distinction in the maximum hours of subsidies available - for example for children in education and whose parent(s) are not in employment/education no SHS is available during the school term and up to 15 hours can be subsidised during school holidays.

and outside of term time. As Table 2 indicates, these differences are substantial, with many more hours available outside of term time. In the SILC data we do not observe how demand for childcare may vary over the year for a given child. As such, we cannot model how childcare hours vary in and out of term for the same child. We must assume that usual hours of care reported are used throughout the year. We also assume that children avail of all their entitled weeks of care once they are in paid childcare and eligible for NCS.

Another minor limitation of the SILC childcare information is that questions regarding childcare usage are only asked for children aged under 13. Therefore, when modelling the subsidy based on actual childcare usage, 13 and 14 year olds who may have an entitlement to NCS are not captured. In any case, it is likely that childcare usage is very low amongst this age group, who will mainly be in secondary school.

Once eligibility for the scheme is established (based on child age and parental means for the means tested subsidies) and whether the child is entitled to the EHS or SHS hours (based on parental labour force status) the subsidy rate received per hour is determined by the parents' assessable income:

- For children whose parental means are less than or equal to the minimum income limit, currently set at of €26,000 per annum, the maximum hourly subsidy rate is received.
- For those children whose parental means are between the minimum and maximum income limit and who are of ECCE age or older the hourly subsidy rate is calculated as:

$$maximum\ hourly\ subsidy * \frac{max\ income\ threshold - \ annual\ means}{max\ income\ threshold - \ min\ inc\ threshold}$$

- For those children whose parental means are between the minimum and maximum income limit and who are not yet eligible for ECCE (i.e. eligible for the UHS) the hourly subsidy rate is calculated as:

$$\left[(maximum\ hourly\ subsidy - UHS\ per\ hour) * \frac{max\ income\ threshold - \ annual\ means}{max\ income\ threshold - \ min\ inc\ threshold}\right] + UHS\ per\ hour$$

- Children below the ECCE eligibility age and whose parents have means above the maximum limit receive the 50 cent per hour UHS for each hour of registered childcare used.

4 Empirical Analysis

The incorporation of NCS into the SWITCH model allows us to examine cost estimates of the scheme as well as examining who will benefit most from the scheme (i.e. from the NCS scheme compared with

having no such scheme, as it is not possible with current data to identify those benefiting from the existing set of means-tested schemes). It also allows us to examine a variety of counterfactual or 'what if' changes to the scheme as it currently stands. We begin by examining how many children are modelled as benefitting from the scheme and how much the scheme is likely to cost based on the modelling approach just described. Namely;

- the subsidy is paid for actual hours used in registered centre-based care. We also examine a scenario where hours of care from all professional childminder care (non-centre-based care are eligible for subsidy)
- childcare usage is as reported at the date of interview and does not vary over the year
- all parents entitled to the subsidy make use of their entitlement based on their existing usage of childcare services[14]
- results are static i.e. parents are assumed to continue to use the same hours of childcare once the NCS subsidies are introduced.

4.1 Estimated Costs and Recipient Numbers under NCS

We detail the number of recipients of a subsidy under the NCS and the associated cost[15] of the NCS scheme as the time of writing. We contrast recent developments in the NCS to its precursor policy of the Affordable Childcare Scheme (ACS). Keane et al. (2017) used SWITCH to investigate the cost, scale and likely distributive impact of ACS had it been introduced in 2017 using a version of SWITCH which had been calibrated using a pooled sample of the 2013 and 2014 waves of SILC. Our results indicated that, the then ACS, would have been a progressive subsidy, which would benefit just over 125,000 children, at a cost of €160 million to the state.

In this piece, we replicate some of the analysis we carried out in Keane et al. (2017). We update the analysis in order to simulate the effects of the antecedent ACS scheme on the 2019 population[16]. The NCS scheme has changed significantly since our initial analysis in 2017. For policy purposes, using the mostly timely data alongside the most accurate policy parameters are crucial for a thorough analysis.

[14] A common finding in research in the area of benefit take-up is that take-up is linked to the amount of the benefit an individual is entitled to with those entitled to lower amounts less likely to claim. See, for example, Matsaganis *et al* (2010); Remler et al (2001).
[15] Cost estimates provided here are for the total amount of subsidies payable, and do not include administrative costs, the cost of referrals from Tusla, transport costs etc.
[16] In Keane et al. (2017) the 2017 population had been used as the target population in the analysis.

We build on the work by Keane et al. (2017) by updating the relevant NCS policy parameters in SWITCH and by incorporating new data, from SILC 2015, into the model.

The key changes to the 2017 version of the scheme we consider are as follows:[17]

- an increase in 2nd and 3rd child allowance from €3,800 to €4,300 in the means test
- an increase in the allowable net income before tapering is applied from €22,700 to €26,000
- an increase in the maximum income limit from €47,500 to €60,000
- childminders are now eligible for the NCS scheme

Overall, the package of reforms will increase the size of subsidies payable to parents with children availing of childcare. Firstly, the increased income thresholds mean that the NCS will provide subsidised cover to more families. Secondly, the broadening of the taper range means those families with net income between €22,700 and €47,500, who would already have been eligible for targeted subsidies under the old rules, now receive larger subsidies as their hourly rate is tapered more gradually as income increases within this range. This change to the scheme will also lower marginal effective tax rates as families increase their labour market earnings. For a wider discussion of the impact of recent childcare subsidies on financial work incentives see Bercholz & Keane (2019).

Making NCS available to childminders who register with Tusla adds an element of uncertainty to the estimation of costs and scope of the new scheme. For instance, if very few childminders registered the marginal impact would be small, while a substantial impact would be evident if a majority registered. As a baseline, in our simulations, we assume that all paid childminders *opt out* to the NCS scheme. In our setting these childminders are informal carers and are likely operating on a small scale. There may be substantial administrative costs for these small carers in registering for the scheme which could act as a large disincentive for participation in the scheme. However, to gain an insight into the possible cost implication of take-up amongst childminders we also analyse a scenario in which all childminders opt into the scheme. This scenario is likely an upper bound on the possible cost of the full NCS scheme and would only be manifested if there was large substitution from non-centre based care to centre based care after the introduction of the NCS.

[17] There are also some very small changes to certain maximum-targeted subsidy rates. For children under 1 year old these fall by 1 cent, from €5.11 to €5.10. For children 12 months to 35 months there is a fall of 2 cent, from €4.37 to €4.35, while school age children face lower rate falls of 1 cent, going from €3.76 to €3.75. These are more rounding issues but nonetheless we incorporate them into the analysis.

In Table 5 we report the cost estimates of three schemes we analyse: the envisaged NCS scheme as of 2017, the 2019 NCS scheme and a variant of the current scheme where childminders are eligible for NCS. We estimate that the 2017 NCS scheme would cost €136 million if implemented in 2019.[18] The current NCS scheme package comes in at €178 million. With the inclusion of childminders this cost rises to €239 million. The majority of the cost increase from including childminders in the NCS is accounted for by the €50 million rise in the enhanced subsidy. This highlights that families where both parents are working/studying are likely to avail of some childminder hours and would gain significantly from the expansion of the scheme.

The alterations to NCS come at a significant cost, rising by close to 30 per cent under the 2019 rules compared to the 2017. The benefit however, is that many more children also gain from this expansion. In Table 6 we highlight the increased coverage achieved by latest version of NCS. Under the 2017 rules, 118,000 children would have been eligible for the scheme. Changes to the means test in the interim increase this to 144,000 - with a small decrease, 9,000, in those eligible for the universal subsidy as more children between 6 months and 3 years old instead become eligible for a targeted subsidy. A possible expansion of the subsidy to childminders substantially increases the number of claimants, rising to 184,000.

The reforms to NCS mean that many more children would now avail of a targeted scheme. This development is in line with one of the major goals of the scheme, to make childcare more affordable for parents in work/education. Changes in the scheme from 2017 to 2019 have meant that more than 20,000 children in working families would now be eligible for a larger annual subsidy under the enhanced version of the scheme.

Table 5: Cost of various forms of NCS, € million per annum

Subsidy Type	2017 NCS Rules	2019 NCS	2019 NCS, childminders eligible
Universal	20	16	25
Standard	27	40	42
Enhanced	89	122	172
Total	**136**	**178**	**239**

Notes: Authors' analysis using SWITCH based on SILC 2013/14/15. Sample weights provided by the CSO are recalibrated to represent the 2019 population.

[18] This is lower than the €160 million quoted in Keane et al. (2017). This lower cost is due to rising incomes from 2017, the period of analysis in Keane et al (2017), to 2019 resulting in a cost reduction in means tested targeted subsidies.

Table 6: Number of children eligible for NCS (000s)

Subsidy Type	2017 NCS Rules	2019 NCS	2019 NCS, childminders eligible
Universal	32	23	33
Standard	37	51	53
Enhanced	49	70	98
Total	**118**	**144**	**184**

Notes: Authors' analysis using SWITCH based on SILC 2013/14/15. Sample weights provided by the CSO are recalibrated to represent the 2019 population.

4.2 Distributive Profile of NCS

In this section we highlight the effects of the NCS scheme on households along the income distribution. The SILC data does not contain information on the stock of childcare schemes which will be phased out with the introduction of NCS; thus, we are unable to simulate the impact of the change from these existing schemes to a new NCS. Instead, we evaluate the distributional profile of the NCS scheme relative to a counterfactual where the scheme does not exist and ECCE is the only childcare subsidy available. To do so, we divide households into ten equally sized groups (deciles). We rank households based on their income after tax and social welfare, adjusted to take account of the needs of families of different sizes[19]. Figure 1 displays these results and highlights the gains both in terms of the nominal cash value and in percentage terms across each decile.

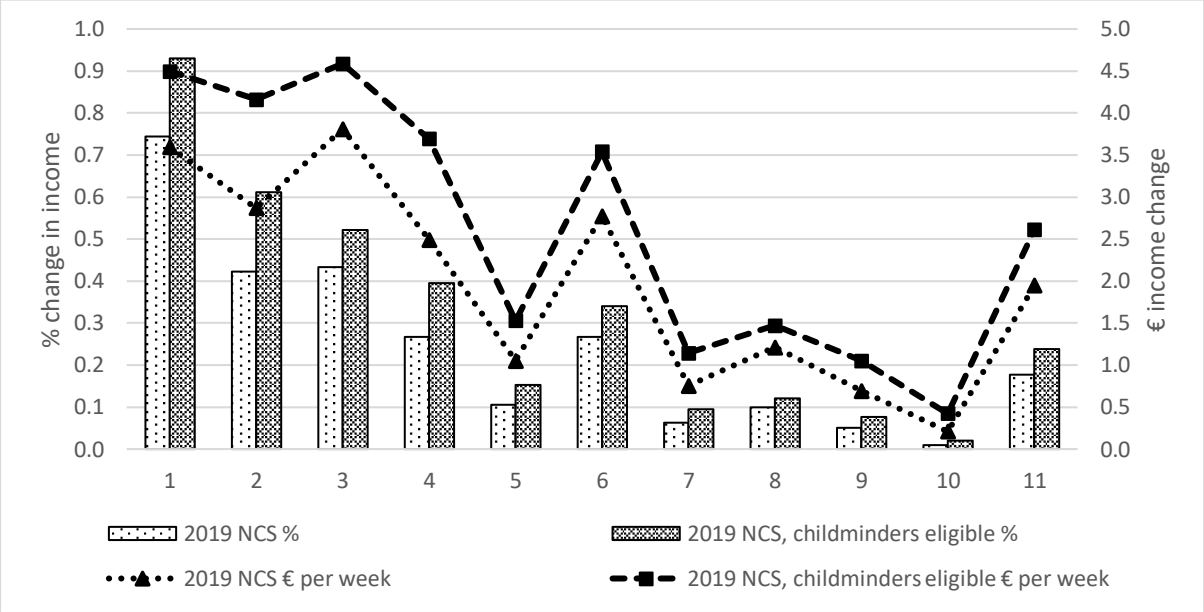
Given the large means tested component of NCS, it is unsurprising that the largest gains from the scheme are found at the bottom of the income distribution. The bottom decile of households gains by 0.7 per cent or €3.60 per week. The subsidy has a progressive profile with percentage gains falling quite smoothly along each decile category, with the exception of a spike in gain in the 6th income decile. The redistributive profile is very similar for the alternative scenario where childminders are modelled as eligible for NCS. Gains at the bottom of the income distribution are higher, rising to 0.9 per cent or €4.50 per week. This indicates that lower income households may be more likely to avail of childminder services as opposed to more formal centre-based care. As such, an expansion of the scheme to include childminders would likely benefit these lower income households.

While assessing the likely distributional profile of the NCS is of interest, we also evaluate how changes to the design of the scheme from 2017 to present will affect households across the income

[19] The adjustment is done using what is known as an equivalence scale. The scale used in Irish national analyses of poverty and social exclusion is 1 for the first adult in a household 0.66 for other adults (to take account of economies of scale) and 0.33 for each child.

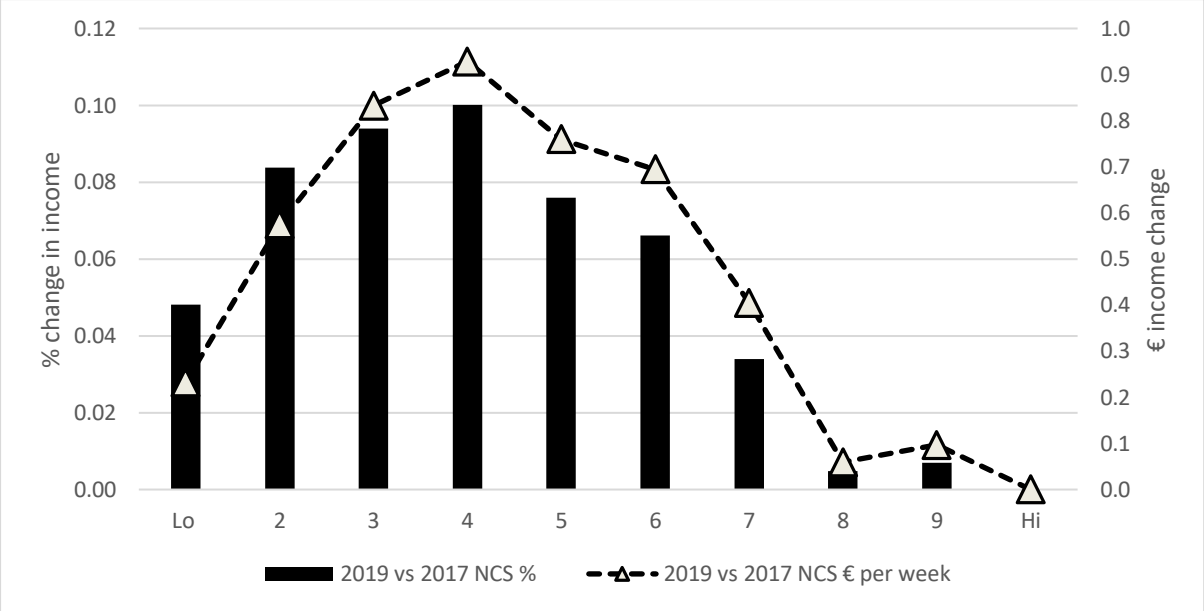
distribution. We find these changes improve the circumstance of all households, with lower income households gaining the most. The bottom half of the income distribution see gains by approximately 0.1 per cent of weekly income, with the largest of these gains in deciles two, three and four. Expanding the income range at which the NCS is payable from €47,500 to €60,000 means that these households see their subsidy tapered less aggressively while the bottom decile gains from tapering starting at €26,000 as opposed to €22,700 under the 2017 rules.

Figure 1: Distributive Profile of NCS 2019, changes in household weekly disposable income by income decile



Notes: Author's analysis using SWITCH based on SILC 2013/14/15. Sample weights provided by the CSO are recalibrated to represent the 2019 population. The distributive impact of the schemes is assessed relative to a counterfactual where the NCS scheme was not introduced. Income deciles are created based on equivalized disposable household income.

Figure 2: Distributive Impact of changes to NCS from 2017 to 2019, changes in household weekly disposable income by income decile



Notes: These are the results of simulating the effect of changes from NCS from 2017 as analysed in Keane et al. (2017) to the version of the scheme in place at the time of writing.

5 Conclusions

This report analyses the structure and potential impact of the new National Childcare Scheme (NCS) using SWITCH, the ESRI microsimulation model. Following a description of the scheme, we detail how the NCS subsidies have been incorporated into the ESRI microsimulation model, SWITCH. We provide estimates of the aggregate cost of NCS and of the numbers of recipients and children covered by the scheme. Finally, we document the impact of the introduction of the scheme for registered childcare users.

We believe our microsimulation approach provides the most rigorous method for evaluating the likely impact of NCS. Our modelling of the subsidy is based on detailed data on the type and cost of childcare used alongside detailed income data which allow us to accurately means test families. Our large sample of close to 10,000 households from a dataset spanning 2013, 2014 and 2015 SILC also allows us to capture the variety of childcare usage patterns in the population. On a technical note, we also adjust the relevant importance given to certain households. This "weighting" technique means that the income distribution produced by SWITCH closely matches that produced from administrative sources while also reproducing key statistics of the population such as population at specific age

intervals, numbers of male/females in work and recipients of an array of social welfare schemes. This detailed, data driven method ensures that SWITCH is primed to give an accurate indication of the likely impact of the NCS.

Our results indicate that NCS will cost €178 million and will offer subsidies to 144,000 children. We also estimate cost and recipients under the NCS if childminders (non-centre-based care) were eligible for NCS, or viewed differently, if all childminders opted into the scheme. In this scenario, the cost of the NCS scheme rises to €239 million, while the number of children benefitting from the scheme increases to 184,000.

We find that the NCS scheme is highly progressive and gives the largest cash amounts to households at the bottom of the income distribution. The poorest 10 per cent of households see an increase in income of 0.7 per cent, which in money terms equates to over €3.50 per week. We also find that changes to the design of the subsidy since 2017 have further poverty proofed the scheme. These changes have advantaged all parts of the income distribution, but those in the bottom half gain the most and by close to 0.1 per cent of weekly income.

However, our analysis comes with an important caveat. We have assumed that the behaviour of childcare providers and of households is unaffected by the introduction of the NCS scheme.

The NCS scheme will likely provide a large transfer to low and middle-income working families. However, other factors could mitigate the benefit of the NCS scheme. First off, the price response by childcare providers could offset some of the financial gains. While the subsidy is aimed at benefitting families by offering discounted prices, if demand for childcare services is sufficiently high and insensitive to price, childcare providers could in theory increase their prices by close to the value of the subsidy. Secondly, families with reckonable income in the taper range (€26,000 to €60,000) will face an increase in marginal effective tax rates. If these families increase their earnings (via increased work hours/earnings) they receive a lower subsidy under NCS, which could act as a small disincentive to increase earnings.

On the other hand, the NCS scheme could also provide indirect benefits to parents by increasing hours worked amongst working parents. This could be particularly relevant to single mothers. Bargain et al. (2014) found that Irish single mothers have a highly elastic labour supply, meaning that they will increase hours in work in response to economic incentives. As such, the NCS subsidy can complement recent labour market activation policies in the lone parent space such as the introduction of the Jobseekers Transition Payment, which aims at lone parents with older children.

After the implementation of the NCS scheme, we will be able to use econometric techniques to detect whether these effects emerged because of the childcare reform. For now, our research indicates that, in the absence of behavioural change, by both childcare providers and households, the NCS scheme is highly progressive and will support low and middle-income households.

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